Merge Unity PACS™ v. 11.1

DICOM CONFORMANCE STATEMENT: NETWORK INTERFACES

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INDICATIONS FOR USE: Merge Unity PACS

Merge Unity PACS is a medical image and information management system that allows viewing, selection, processing, printing, telecommunications, and media interchange of medical images from a variety of diagnostic imaging systems. Merge Unity PACS interfaces to various storage and printing devices using DICOM or similar interface standards.

Merge Unity PACS displays, stores, prints, and telecommunicates images from a number of medical modalities, including but not limited to MRI, CT, US, PET, DXA (bone densitometry), nuclear imaging, computed radiography, digital radiography, digitized films, digital photographs, mammographic images, and processed data from FDA-cleared third party image processing systems, including FDA-cleared systems for computer-aided detection and advanced image processing (e.g. 3-D processed images such as those produced by Voxar Corp.).

Lossy compressed mammographic images must not be used for primary diagnostic interpretation unless approved for use in digital mammography. Display monitors used for primary diagnostic interpretation of mammographic images must be approved for use in digital mammography.

INDICATIONS FOR USE: Z3D

Z3D is intended to provide reading physicians, referring physicians, and other appropriate healthcare professionals tools to aid in interpreting medical images, including:

- Displaying DICOM compliant medical image volumes, such as CT, MRI, and PET.
- Reformatting images, including creation of MPRs, MIPs, MinIPs, color/monochrome 3D volume rendered images.
- Manipulating displayed images via control of slice thickness, slice interval, obliquity, perspective, rotation, window/level, crop, zoom, color/monochrome transformations, segmentation, sculpting, straightening the display of curved structures, and creating images perpendicular to a curvilinear path.
- Creating series of DICOM images and individually captured images that can be displayed and stored in a PACS.
- Measuring coronary calcium, which is intended for non-invasive identification and quantification of calcified atherosclerotic plaques in the coronary arteries using tomographic medical image data and clinically accepted calcium scoring algorithms.

CAUTION: Federal law restricts this device to sale by or on the order of a physician.
CAUTION: Unity PACS and Merge Z3D are not intended for diagnostic use on mobile device such as a phone or tablet.

The symbols glossary is provided electronically at http://www.merge.com/Support/Resources.aspx.

CANADIAN DEVICE IDENTIFIER:

Device Name	Device Identifier
UNITY RIS/PACS	C-DRSW-00001
Merge Z3D	MERGE Z3D

Manufacturer's Address
Merge Healthcare Incorporated
900 Walnut Ridge Drive
Hartland, WI 53029

DOCUMENT VERSION LOG:

Part	Date	Revision	Description
UPAX-5337	12/13/2016	1	Initial release
	05/05/2017	2	Updated copyright.

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1 Introduction

1.1 Purpose

The Conformance Statement facilitates a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.

DICOM 3.0 compliance does not, by itself, ensure that health systems will interoperate effectively. Testing is essential to ensure that any DICOM interface will meet the user's required level of interoperability.

The Introduction provide an informal description of Merge Unity DICOM capabilities and definitions of basic DICOM terms; however, to use the rest of the DICOM Conformance Statement effectively, the reader needs to already be familiar with DICOM 3.0 concepts and terminology.

1.2 Overview

Merge Unity is an integrated RIS-CVIS-PACS-Reporting platform. It can be used as a complete enterprise image and information solution, and it can work in conjunction with devices and other systems using DICOM and HL7 interfaces. This document describes the DICOM network capabilities of Unity.

Table 1: Network Services

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Transfer		
Computed Radiography Image Storage	Yes	Yes
Digital X–Ray Image Storage – For Presentation	Yes	Yes
Digital X–Ray Image Storage – For Processing	Yes	Yes
Digital Mammography X–Ray Image Storage – For Presentation	Yes	Yes
Digital Mammography X–Ray Image Storage – For Processing	Yes	Yes
Digital Intra–oral X–Ray Image Storage – For Presentation	Yes	Yes

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Digital Intra–oral X–Ray Image Storage – For Processing	Yes	Yes
CT Image Storage	Yes	Yes
Ultrasound Multi-frame Image Storage (Retired)	Yes	Yes
Ultrasound Multi–frame Image Storage	Yes	Yes
MR Image Storage	Yes	Yes
Nuclear Medicine Image Storage (Retired)	Yes	Yes
Ultrasound Image Storage (Retired)	Yes	Yes
Ultrasound Image Storage	Yes	Yes
Secondary Capture Image Storage	Yes	Yes
Multi–frame Single Bit Secondary Capture Image Storage	Yes	Yes
Multi–frame Grayscale Byte Secondary Capture Image Storage	Yes	Yes
Multi–frame Grayscale Word Secondary Capture Image Storage	Yes	Yes
Multi–frame True Color Secondary Capture Image Storage	Yes	Yes
Basic Voice Audio Waveform Storage	Yes	Specific use[1]
Grayscale Softcopy Presentation State Storage SOP Class	Yes	Yes
X–Ray Angiographic Image Storage	Yes	Yes
X–Ray Radiofluoroscopic Image Storage	Yes	Yes
X-Ray Angiographic BiPlane Storage (Retired)	Yes	Yes
Nuclear Medicine Image Storage	Yes	Yes
Raw Data Storage	Yes	Specific use[2]
VL Endoscopic Image Storage	Yes	Yes
VL Microscopic Image Storage	Yes	Yes
VL Slide–Coordinates Microscopic Image Storage	Yes	Yes
VL Photographic Image Storage	Yes	Yes

[1] Supported specifically for receiving General Audio Waveform objects stored by Unity in an external DICOM archive.
[2] Supported specifically for receiving Raw Data objects stored by Unity in an external DICOM archive.

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Ophthalmic Photography 8 Bit Image Storage	Yes	Yes
Ophthalmic Photography 16 Bit Image Storage	Yes	Yes
Basic Text SR Storage	Yes	Yes
Enhanced SR Storage	Yes	Yes
Comprehensive SR Storage	Yes	Yes
Mammography CAD SR Storage	Yes	Yes
Key Object Selection Document Storage	Yes	No
Positron Emission Tomography Image Storage	Yes	Yes
Encapsulated PDF Storage	Yes	Yes
General ECG Waveform Storage	Yes	Yes
12-lead ECG Waveform Storage	Yes	Yes
Breast Tomosynthesis Image Storage	Yes	Yes
X-Ray Radiation Dose SR	Yes	Yes
Query/Retrieve		
Patient Root Query/Retrieve Information Model – FIND	Yes	Yes
Patient Root Query/Retrieve Information Model – MOVE	Yes	Yes
Study Root Query/Retrieve Information Model – FIND	Yes	Yes
Study Root Query/Retrieve Information Model – MOVE	Yes	Yes
Patient/Study-Only Query/Retrieve Information Model – FIND	Yes	Yes
Patient/Study-Only Query/Retrieve Information Model – MOVE	Yes	Yes
Workflow Management		
Storage Commitment Push Model SOP Class	Yes	Yes
Modality Performed Procedure Step SOP Class	No	Yes
Modality Worklist Information Model – FIND	No	Yes

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Print Management		
Basic Grayscale Print Management Meta SOP Class	Yes	No

1.3 Chronicle of Document Revisions

Table 2 is a record of current and prior revisions of this document. It is for informational purposes only, and does not represent controlled document revisions.

Table 2 – Chronicle of Revisions of This Document

Date	Description of Changes
09/21/2005	Initial Release
08/10/2006	Update Section 3.1: STORAGE SERVICE AE Specification - SCP Add DIGATE (as Storage SCP) support for Modality Performed Procedure Step SCP.
10/20/2006	Updated DICOM Conformance Statement to include support for Mammography CAD Structured Reports as Storage SCP.
05/24/2007	Add Storage Commitment to Conformance Statement
01/07/2008	Updates to add Lossless JPEG and misc. corrections.
07/23/2010	Update: -Section-3.6.2.2.4, -Update LOGO
05/02/2012	Replace DIQuery with new Storage SCU Application Entities. Put Conformance Statement into format Required by PS 3.2.
05/25/2012	Add that an Icon Image Sequence with encapsulated (compressed) Pixel Data will be dropped if the image compression type is changed.
07/16/2012	Add Storage Commitment SCU support to a DICOM Archive.

1.4 Audience

This Conformance Statement is intended for people who need to understand how Merge Unity can integrate into a healthcare facility and with other devices and systems using DICOM network interfaces. This may include, but is not limited to, potential and current customers, health system administrators, health system integrators, hospital staff, marketing persons interested in system functionality, and software designers or implementers of DICOM interfaces.

1.5 Remarks

1.6 Terms and Definitions

Informal definitions are provided for the following terms used in this Conformance Statement. The DICOM Standard is the authoritative source for formal definitions of these terms.

Abstract Syntax – the information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples: Verification SOP Class, Modality Worklist Information Model Find SOP Class, Computed Radiography Image Storage SOP Class.

Application Entity (AE) – an end point of a DICOM information exchange, including the DICOM network or media interface software; i.e., the software that sends or receives DICOM information objects or messages. A single device may have multiple Application Entities.

Application Entity Title – the externally known name of an *Application Entity*, used to identify a DICOM application to other DICOM applications on the network.

Application Context – the specification of the type of communication used between *Application Entities*. Example: DICOM network protocol.

Association – a network communication channel set up between *Application Entities*.

Attribute – a unit of information in an object definition; a data element identified by a *tag*. The information may be a complex data structure (Sequence), itself composed of lower level data elements. Examples: Patient ID (0010,0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).

DICOM (Digital Imaging and Communications in Medicine) – The industry standard for transfer of radiologic images and other medical information between computers. DICOM enables digital communication between diagnostic and therapeutic equipment and systems from various manufacturers.

Information Object Definition (IOD) – the specified set of *Attributes* that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. The *Attributes* may be specified as Mandatory (Type 1), Required but possibly unknown (Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C). Examples: MR Image IOD, CT Image IOD, Print Job IOD.

Joint Photographic Experts Group (JPEG) – a set of standardized image compression techniques, available for use by DICOM applications.

Media Application Profile – the specification of DICOM information objects and encoding exchanged on removable media (e.g., CDs)

Module – a set of *Attributes* within an *Information Object Definition* that are logically related to each other. Example: Patient Module includes Patient Name, Patient ID, Patient Birth Date, and Patient Sex.

Negotiation – first phase of *Association* establishment that allows *Application Entities* to agree on the types of data to be exchanged and how that data will be encoded.

Presentation Context – the set of DICOM network services used over an *Association*, as negotiated between *Application Entities*; includes *Abstract Syntaxes* and *Transfer Syntaxes*.

Protocol Data Unit (PDU) – a packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.

Security Profile – a set of mechanisms, such as encryption, user authentication, or digital signatures, used by an *Application Entity* to ensure confidentiality, integrity, and/or availability of exchanged DICOM data

Service Class Provider (SCP) – role of an *Application Entity* that provides a DICOM network service; typically, a server that performs operations requested by another *Application Entity* (*Service Class User*). Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).

Service Class User (SCU) – role of an *Application Entity* that uses a DICOM network service; typically, a client. Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU)

Service/Object Pair (SOP) Class – the specification of the network or media transfer (service) of a particular type of data (object); the fundamental unit of DICOM interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.

Service/Object Pair (SOP) Instance – an information object; a specific occurrence of information exchanged in a *SOP Class*. Examples: a specific x-ray image.

Tag – a 32-bit identifier for a data element, represented as a pair of four digit hexadecimal numbers, the "group" and the "element." If the "group" number is odd, the tag is for a private (manufacturer-specific) data element. Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element]

Transfer Syntax – the encoding used for exchange of DICOM information objects and messages. Examples: *JPEG* compressed (images), little endian explicit value representation.

Unique Identifier (UID) – a globally unique "dotted decimal" string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier. Examples: Study Instance UID, SOP Class UID, SOP Instance UID.

Value Representation (VR) – the format type of an individual DICOM data element, such as text, an integer, a person's name, or a code. DICOM information objects can be transmitted with either explicit identification of the type of each data element (Explicit VR), or without explicit identification (Implicit VR); with Implicit VR, the receiving application must use a DICOM data dictionary to look up the format of each data element.

1.7 Abbreviations

The following acronyms and abbreviations are used in this document.

ACR	American College of Radiology
AE	Application Entity
AET	Application Entity Title
CAD	Computer Aided Detection
CDA	Clinical Document Architecture
CD-R	Compact Disk Recordable
CSE	Customer Service Engineer
CR	Computed Radiography
CT	Computed Tomography
DHCP	Dynamic Host Configuration Protocol
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DICOM Message Service Element-Composite
DIT	Directory Information Tree (LDAP)
DN	Distinguished Name (LDAP)
DNS	Domain Name System
DX	Digital X-ray
FSC	File-Set Creator
FSU	File-Set Updater
FSR	File-Set Reader
GSDF	Grayscale Standard Display Function
GSPS	Grayscale Softcopy Presentation State
HIS	Hospital Information System
HL7	Health Level 7 Standard
IHE	Integrating the Healthcare Enterprise
IOD	Information Object Definition
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
ISO	International Organization for Standards
IO	Intra-oral X-ray
JPEG	Joint Photographic Experts Group
LDAP	Lightweight Directory Access Protocol
LDIF	LDAP Data Interchange Format
LUT	Look-up Table
MAR	Medication Administration Record
MPEG	Moving Picture Experts Group
MG	Mammography (X-ray)
MPPS	Modality Performed Procedure Step
MR	Magnetic Resonance Imaging
MSPS	Modality Scheduled Procedure Step

MTU	Maximum Transmission Unit (IP)
MWL	Modality Worklist
NEMA	National Electrical Manufacturers Association
NM	Nuclear Medicine
NTP	Network Time Protocol
O	Optional (Key Attribute)
OP	Ophthalmic Photography
OSI	Open Systems Interconnection
PACS	Picture Archiving and Communication System
PDU	Protocol Data Unit
PET	Positron Emission Tomography
R	Required (Key Attribute)
RDN	Relative Distinguished Name (LDAP)
RF	Radiofluoroscopy
RIS	Radiology Information System.
RT	Radiotherapy
SC	Secondary Capture
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
SPS	Scheduled Procedure Step
SR	Structured Reporting
TCP/IP	Transmission Control Protocol/Internet Protocol
U	Unique (Key Attribute)
UID	Unique Identifier
UL	Upper Layer
US	Ultrasound
VL	Visible Light
VR	Value Representation
XA	X-ray Angiography

1.7.1 Referenced Documents

The following are related documents:

Document number	Title
	No related documents

The following are referenced external standards:

Title	Description
NEMA PS3	Digital Imaging and Communications in Medicine (DICOM) Standard, available free at http://medical.nema.org/

NEMA PS3.4-2004	Digital Imaging and Communications in Medicine (DICOM) Standard, year 2004, available free at ftp://medical.nema.org/medical/dicom/2004/printed/04_04pu.pdf, for: • Patient/Study Only data model. • Graphic Layer Recommended Display RGB Value (0070,0067)

1.7.2 Scope

This document applies to Unity Version 11.1 and remains valid for subsequent versions until a replacement document is provided at the Merge Systems web site at: www.merge.com.

2 Networking DICOM Conformance

2.1 Implementation Model

The system provides extensive DICOM functionality, with the goal not only to support interchange and display of DICOM images, but also to provide the tools to make DICOM images more usable to technologists and radiologist than the inherent data would otherwise allow.

DICOM is a native image format in the Unity System. All received and internally generated DICOM objects are stored in Part 10 format, with extensions and private attributes preserved. Merge Unity adds private tags to received objects. Attributes that can be coerced are documented in **5.1.25 Coerced/Modified fields**.

2.1.1 Application Entity system components

Service Class Providers - DICOM Gateway ("DIGATE")

The MWL-SCP AE, Storage-Service AE, Q/R-Online-SCP AE, and the Q/R-Online/Archived-SCP AE are all implemented in the DIGATE application. Each SCP AE listens for incoming connections on separate ports, and the maximum number of concurrent connections for each SCP AE is configured separately. This ensures that if one AE is backlogged, the others are not blocked. A facility can run one or more instances of DIGATE, depending on workflow requirements, network layout, and throughput capacity needs.

Storage and Q/R Service Class Users

Merge Unity workstations each contain an instance of the Q/R-SCU AE and the Storage-SCU AE, which allows them to request services on behalf of the user. The server components Automation/Messenger also contain instances of the Q/R-SCU AE and Storage-SCU AE, allowing automated and background, unattended requests. Retrieve requests reference a DIGATE instance as the Storage SCP AE move destination. Typically, this is the instance on the DICOM Guardian. The Q/R-SCU AE uses internal Merge Unity **Error! No text of specified style in document.**communications to let the Storage SCP AE know what to expect.

Print Formatter

Merge Unity provides extensive complete DICOM Print SCU support for rendering images to a DICOM Print SCP.

The user may control the series to be printed, image quality, layout, orientation, annotations and size characteristics of the printed image. The supported page formats are entirely configurable within the system.

The DICOM Print SCU runs within the Print Format application on the DR Systems DICOM Print Workstation.

DICOM Print SCU capabilities are invoked by sending a print job to a DICOM Printer. DICOM Printing is controlled by printer specific settings for each validated DICOM printer.

DICOM Guardian

The DICOM Guardian is the interface subsystem to an external DICOM archive. It may also serve as a destination for study storage and query/retrieve requests from outside DICOM systems. A DICOM Guardian includes a Guardian-Storage-SCU AE, a Guardian-Q/R-SCU AE, a Guardian-Storage-Service AE, and a Guardian-Storage-Commitment-SCU AE. If the facility does not use an external DICOM archive, then the Guardian-Storage-SCU AE and the Guardian-Storage-Commitment-SCU AE are not used. The Guardian-Storage-Service AE and the Guardian-Storage-Commitment-SCU AE run on an instance of the DIGATE application that is configured to serve the needs of the DICOM Guardian subsystem. The Guardian-Storage-Service AE is a dual-mode AE; it also acts as a (non-Guardian) Storage-Service AE when receiving DICOM objects that are not part of a restore from the DICOM Archive.

2.1.2 Merge Unity Exams

Merge Unity uses the concept of an "exam" to present studies to its users. Typically, an exam corresponds to a DICOM Study, but it also handles cases where the received instances' Study Instance UID does not reflect the clinical situation. For example:

- If procedures are accidentally performed for two different patients under the same DICOM Study Instance UID, Merge Unity can split that DICOM Study into two separate exams.
- If additional images or other DICOM artifacts for a study are created by a device that does not copy the original Study Instance UID, Merge Unity can merge the two DICOM studies into a single exam.
- If multiple ordered procedures are performed as a single procedure (e.g. CT of the head, neck, and chest), the single performed DICOM Study can be split into multiple exams. Images may be duplicated into multiple exams, allowing overlap of the boundary regions.

Each exam has a distinct Study Instance UID. When necessary, for example, when one study is split into two exams, Merge Unity will generate a new Study Instance UID for the new exam.

A DICOM Q/R SCU system that is querying Merge Unity and a DICOM Storage SCP receiving DICOM objects from Merge Unity will see Instance UIDs based on Merge Unity's exam organization. In this way, the outside DICOM system has the same view of exams as a

Merge Unity user. As a result, the Study Instance UID in a SOP Instance may be different than it was when originally sent to Merge Unity.

When Merge Unity exams are split, merged, or copied, SOP Instances may be moved or copied into a different exam. When that happens, the Study Instance UID in these SOP Instances will be coerced to match the Study Instance UID of the destination exam. To comply with DICOM's entity-relation requirement, Merge Unity **Error! No text of specified style in document.**will also generate new SOP Instance UIDs and Study Instance UIDs for these SOP Instances. Series relationships are preserved: SOP Instances that are grouped in a series in the original exam will remain grouped in a series in the destination exam. In addition, any Series/SOP Instance UID references within the exam coerced to the new UID values. This ensures that relationships such as referenced and source image sequences, Presentation States, CAD SRs, Structured Reports, etc., remain valid. Each SOP Instance carries the history of its prior Instance UIDs in the private attribute DR Original Instance UID Sequence (see **5.2.1 DR Original Instance UID Sequence**).

Since Merge Unity presents a one-to-one relationship between exams and studies, this document will refer to studies except where the distinction with exams is significant.

Merge Unity organizes images in an exam into display series that are allowed to vary from the underlying DICOM series when that better reflects how the user wants to see the exam's content. The DICOM series organization is not disturbed; Merge Unity conveys its display series organization to other DICOM display systems through its generated Interoperability Presentation States (see **5.1.1.1 Interoperability Softcopy Presentation State IOD**.)

Merge Unity allows users to create, modify, and save current display parameters and annotations for images. Merge Unity will create Grayscale Softcopy Presentation State SOP Instances to convey this current presentation information to other DICOM systems.

Merge Unity has the ability to generate a Key Object Specification Document SOP Instance which references a Secondary Capture montage image compiled by the reading physician, to identify that image to other DICOM systems.

These "interoperability" SOP Instances are generated as needed, and then discarded. They are not stored with the study.

2.1.3 Wrapped Raw Data SOP Instances

Merge Unity exams include files that are needed by it but not designed to be meaningful to other systems. In order to store these files in a DICOM Archive, or when it is necessary to convey these files through a DICOM mechanism, they can be wrapped in a standard DICOM Raw Data SOP Instance. Because they are not useful for other systems, they are only generated in cases where a "round trip" back to a **Error! No text of specified style in document.**Merge Unity application is expected. Those cases are identified in relevant sections.

Note: Merge Unity provides as much of the useful content as possible to other DICOM systems through private attributes, coerced attributes, and Interoperability SOP Instances.

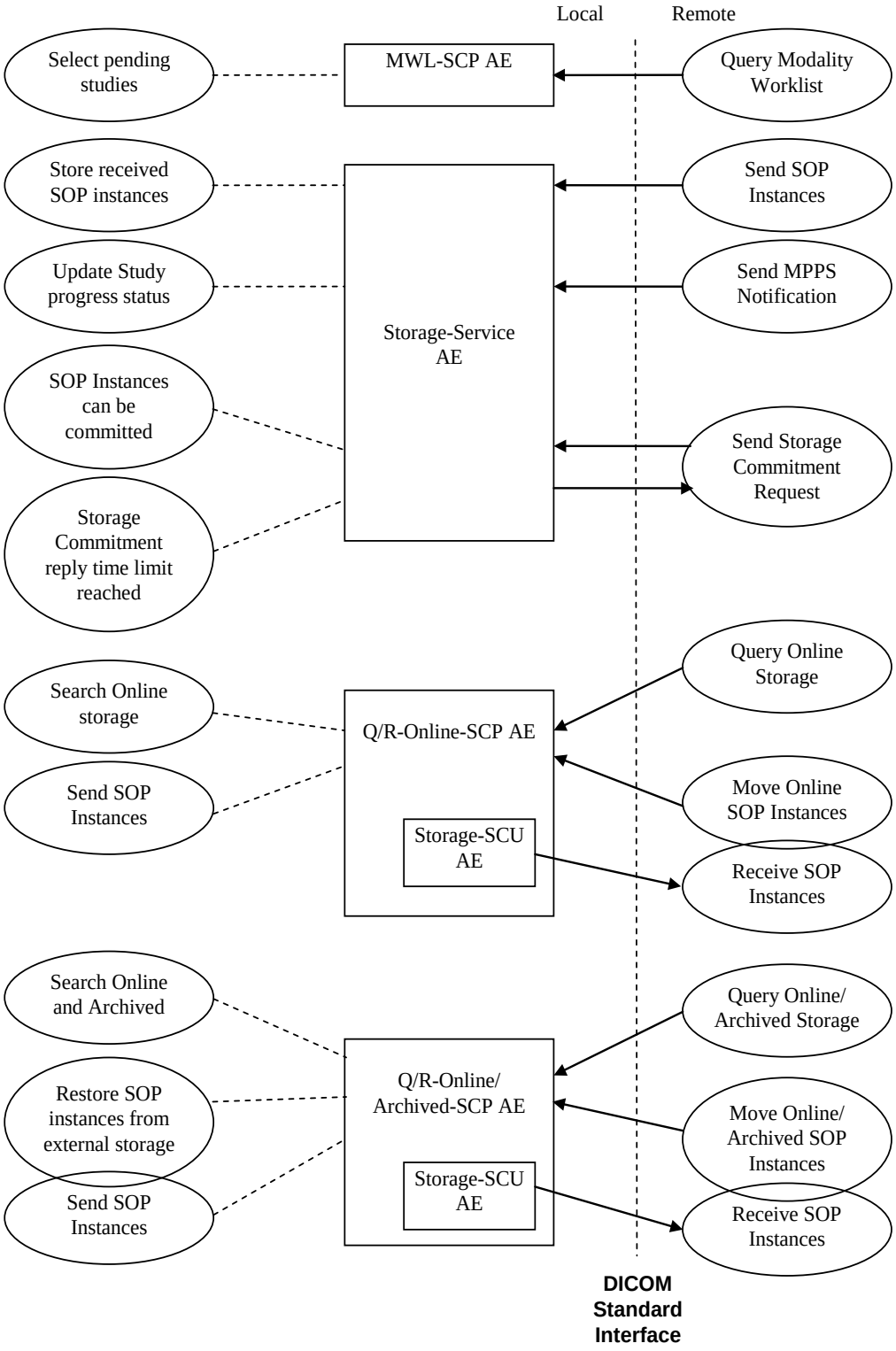
These wrapped Raw Data SOP Instances are generated as needed, and then discarded. They are not stored with the study.

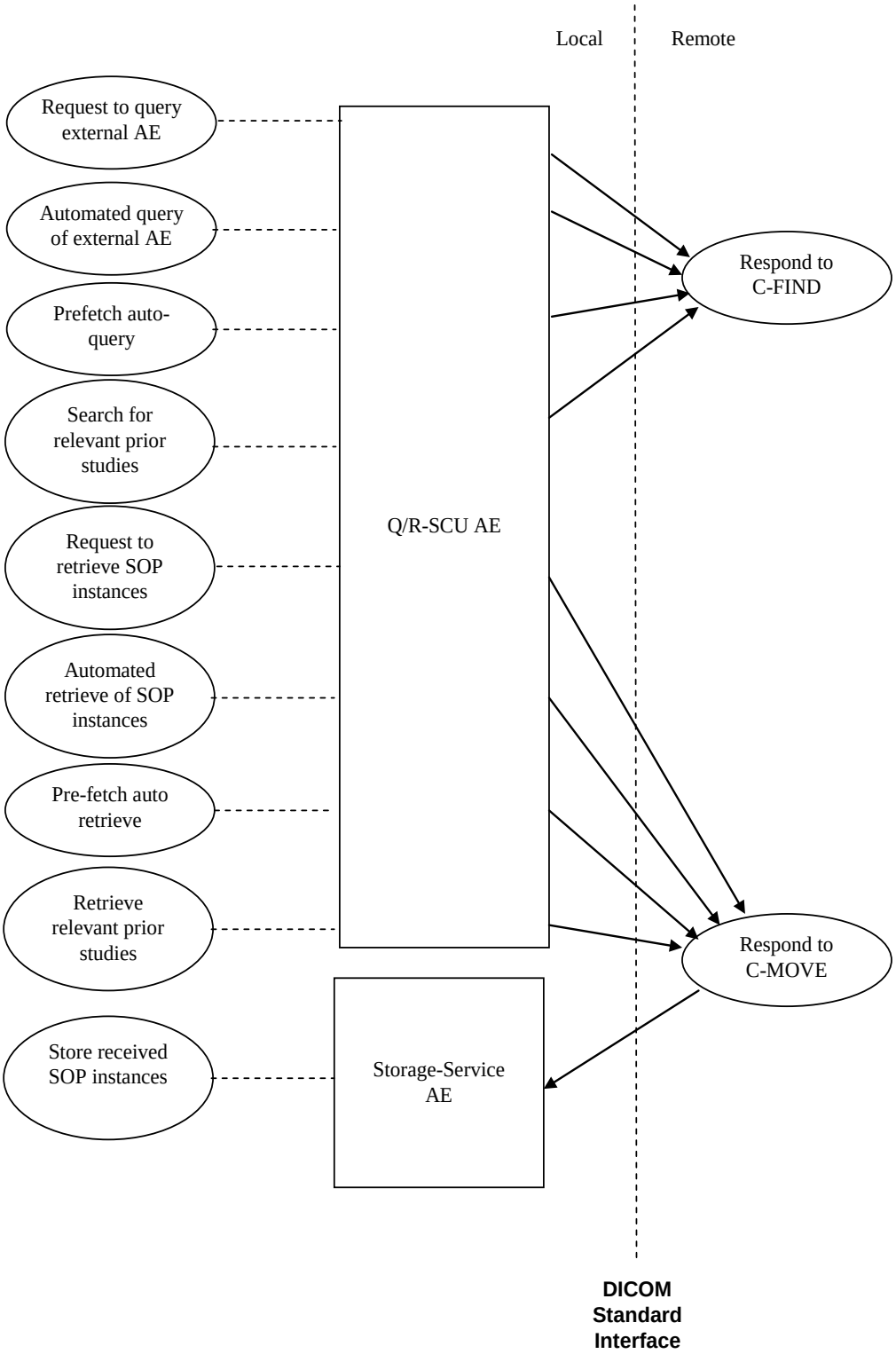
2.1.4 Application Data Flow Diagram

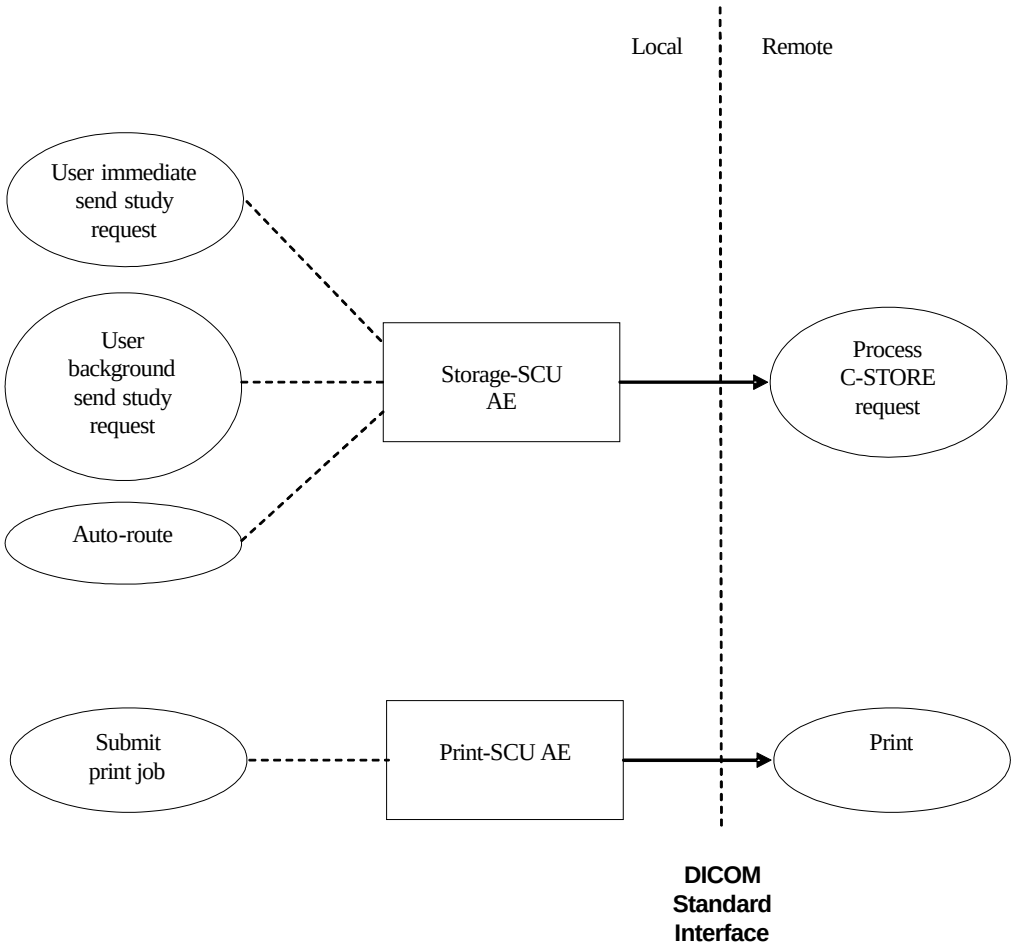
Note: Some AEs have additional capabilities beyond what their names suggest:

- The Storage-Service AE is also an MPPS SCP and a Storage Commitment SCP.
- The Q/R-Online-SCP AE and the Q/R-Online/Archived-SCP AE operate with an embedded instance of the Storage-SCUs AE.

Figure 1 - Application Data Flow Diagram

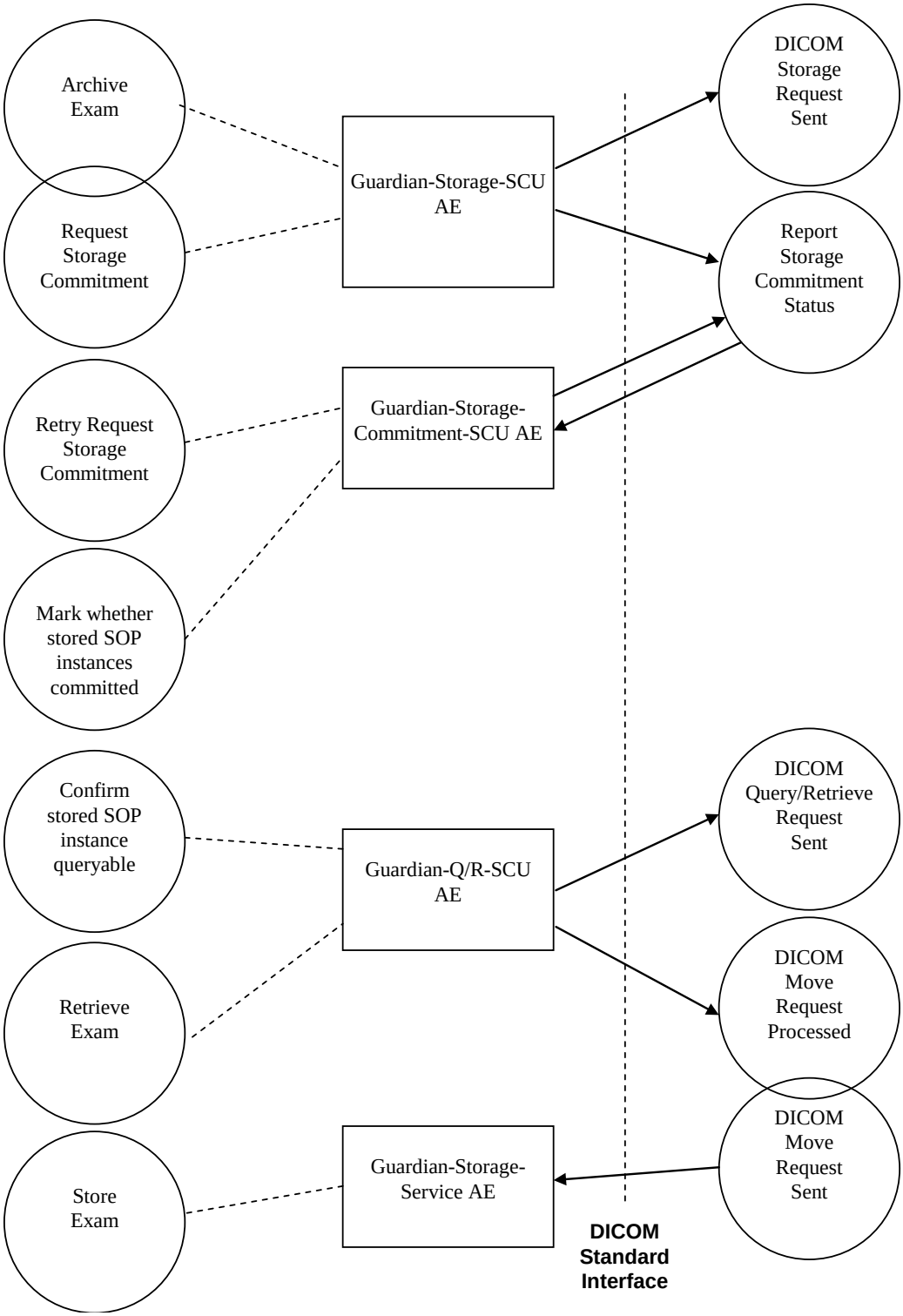

Local
Remote
Select pending studies
MWL-SCP AE
Query Modality Worklist
Store received SOP instances
Update Study progress status
SOP Instances can be committed
Storage Commitment reply time limit reached
Storage-Service AE
Send SOP Instances
Send MPPS Notification
Send Storage Commitment Request
Search Online storage
Send SOP Instances
Q/R-Online-SCP AE
Storage-SCU AE
Query Online Storage
Move Online SOP Instances
Receive SOP Instances
Search Online and Archived
Restore SOP instances from external storage
Send SOP Instances
Q/R-Online/ Archived-SCP AE
Storage-SCU AE
Query Online/ Archived Storage
Move Online/ Archived SOP Instances
Receive SOP Instances
DICOM Standard Interface


Local
Remote
Request to query external AE
Automated query of external AE
Prefetch auto-query
Search for relevant prior studies
Request to retrieve SOP instances
Automated retrieve of SOP instances
Pre-fetch auto retrieve
Retrieve relevant prior studies
Store received SOP instances
Q/R-SCU AE
Storage-Service AE
Respond to C-FIND
Respond to C-MOVE
DICOM Standard Interface



The next diagram is specific to the Guardian AE (storage and Query/Retrieve)

Figure 2 - Guardian Application Entity Data Flow Diagram


Archive Exam
Request Storage Commitment
Retry Request Storage Commitment
Mark whether stored SOP instances committed
Confirm stored SOP instance queryable
Retrieve Exam
Store Exam
Guardian-Storage-SCU AE
Guardian-Storage-Commitment-SCU AE
Guardian-Q/R-SCU AE
Guardian-Storage-Service AE
DICOM Storage Request Sent
Report Storage Commitment Status
DICOM Query/Retrieve Request Sent
DICOM Move Request Processed
DICOM Move Request Sent
DICOM Standard Interface

2.1.5 Functional Definition of Application Entities

All Merge Unity SCP Application Entities also act as Verification SCPs, and if an association is accepted, will respond to a C-ECHO request with a C-ECHO response.

2.1.5.1 Functional Definition of MWL-SCP AE

The Modality Worklist AE is available to act as a Basic Worklist SCP.

An association request to this AE will be accepted only if the calling AE Title is in the list of allowed MWL SCU AEs.

The receipt of a C-FIND request will result in a search of the system's worklist, and the response of as many C-FIND responses as appropriate.

2.1.5.2 Functional Definition of Storage-Service AE

The Storage-Service AE is available to act as a Storage SCP, Modality Performed Procedure Step SCP, and a Storage Commitment SCP.

The receipt of a C-STORE request will cause the received SOP Instance to be stored in a study.

This AE accepts and processes Modality Performed Procedure Step N-CREATE and N-SET messages, and will use that information to manage the workflow of received studies.

This AE accepts and processes Storage Commitment N-ACTION request, allowing the sending system to ask Merge Unity to take responsibility for received SOP Instances. The point at which Merge Unity will take that responsibility is configurable. Once Merge Unity has determined whether it can commit to all of the objects listed, or if a configurable time limit expires, this AE will send an N-EVENT-REPORT to the configured AE with the AE Title from which the N-ACTION request originated.

2.1.5.3 Functional Definition of Q/R-Online-SCP AE

The Q/R-Online-SCP AE is available to act as a Query/Retrieve SCP.

An association request to this AE will be accepted only if the calling AE Title is in the list of allowed Q/R SCU AEs.

A PATIENT or STUDY level C-FIND query is answered based on a search of the Online list. A SERIES or IMAGE level query response may include both instances stored for that study and, if so configured, generated presentation states and key object specification documents that represent the current study information.

Instances sent in response to a C-MOVE request are updated to reflect current demographic and study information. Unless images undergo lossy compression upon sending, the instances will

contain the same SOP Instance UIDs as were returned by a corresponding C-FIND response, up to a configurable time limit.

The move destination AE Title must be configured as a known storage destination. Instances stored are updated to reflect current demographic and study information.

The maximum number of concurrent requests that this AE can support is configurable.

2.1.5.4 Functional Definition of Q/R-Online/Archived-SCP AE

The Q/R-Online/Archived-SCP AE is available to act as a Query/Retrieve SCP.

An association request to this AE will be accepted only if the calling AE Title is in the list of allowed Q/R SCU AEs.

A C-FIND query is answered based on a union of searches of the Online and Archived lists.

A C-MOVE request for an ONLINE study to this AE is handled the same way as by the Q/R-Online-SCP AE. A C-MOVE request for a NEARLINE study will trigger a restore request for that study. If the study is restored within a configurable time interval, then the C-MOVE is handled as an Online study. If the study is not restored in that time interval, then the C-MOVE response indicates failure; however, the restore request remains active, and a subsequent C-MOVE request may be successful.

The move destination AE Title must be configured as a known storage destination. Instances stored are updated to reflect current demographic and study information.

The maximum number of concurrent requests that this AE can support is configurable.

2.1.5.5 Functional Definition of Q/R-SCU AE

The Q/R-SCU AE submits query and move requests to DICOM systems. This AE supports interactive query and retrieve, automated query and retrieve, automated pre-fetch of prior exams, and automated listing of prior exams from other DICOM systems.

There are multiple instances of the Q/R-SCU AE in a typical Merge Unity installation. Each instance has its own AE Title. The configured list of known other system Query/Retrieve SCPs may, but need not, be different for instances of the Q/R-SCU AE.

The user may ask the Q/R-SCU AE to submit a Verification request to determine if the destination system is available.

2.1.5.6 Functional Definition of Storage-SCU AE

The Storage-SCU AE sends DICOM SOP Instances to a DICOM Storage SCP selected from a configured list of storage destinations. Instances stored are updated to reflect current demographic and study information.

The storage destination AE Title must be configured as a known storage destination.

The user may ask the Storage-SCU AE to submit a Verification request to determine if the destination system is available.

2.1.5.7 Functional Definition of Print-SCU AE

The Print-SCU AE provides DICOM Print SCU support for rendering images to a DICOM Print SCP.

The user may control the series to be printed, image quality, layout, orientation, annotations and size characteristics of the printed image. The supported page formats are entirely configurable within the system.

The DICOM Print SCU runs within the Print Format application on the Unity DICOM Print Workstation.

DICOM Print SCU capabilities can be invoked by sending a print job to a DICOM Printer from the "Universal Manager" application. DICOM Printing is controlled by printer specific settings for each validated DICOM printer.

2.1.5.8 Functional Definition of Guardian-Storage-SCU AE

The Guardian-Storage-SCU AE will submit C-STORE requests when it identifies a study to be archived. The request is sent to a specific Storage SCP Application Entity that has been configured as the DICOM Archive for the system. A record of SOP Instances stored is kept in the database.

The Guardian-Storage-SCU AE may store both instances stored for the study being archived and, if so configured, generated presentation states and key object specification documents that represent the current study information.

Instances stored are updated to reflect current demographic and study information.

After storing a study for archive, the Guardian-Storage-SCU AE will, if configured, submit a push-model Storage Commitment N-ACTION request to the DICOM archive's Storage Commitment SCP AE (which may be the same as or different than the DICOM Archive's Storage Service AE.) The DICOM Guardian expects that the DICOM Archive will respond, eventually, with a Storage Commitment N-EVENT-REPORT on a separate association. The N-ACTION request instructs the DICOM archive to send the N-EVENT-REPORT to the Guardian-Storage-Commitment-SCU AE.

The Guardian-Storage-SCU AE submits Verification requests to determine if the destination system is available.

2.1.5.9 Functional Definition of Guardian-Q/R-SCU AE

The Guardian-Q/R-SCU AE will submit C-MOVE requests for a list of specific SOP Instances in response to a request to restore a study from the DICOM Archive. There will be a separate C-MOVE request for each series being restored.

The DICOM Archive's Query/Retrieve SCP AE may be the same as or different from its Storage-Service AE.

2.1.5.10 Functional Definition of Guardian-Storage-Service AE

The Guardian-Storage-Service AE is an instance of the Storage-Service AE that is configured to support the additional needs of the DICOM Guardian. It preserves the full capabilities of the Storage-Service AE.

2.1.5.11 Functional Definition of Guardian-Storage-Commitment-SCU AE

The Guardian-Storage-Commitment-SCU AE supports receiving Storage Commitment confirmations from an external DICOM Archive. It accepts N-EVENT-REPORT responses from a Storage Commitment SCP. The Guardian-Storage-Commitment-SCU AE may also re-attempt sending a push-model Storage Commitment N-ACTION request to the DICOM archive's Storage Commitment SCP AE, up to a configurable number of times, if it does not get an N-EVENT-REPORT for the prior attempt.

2.1.6 Sequencing of Real World Activities

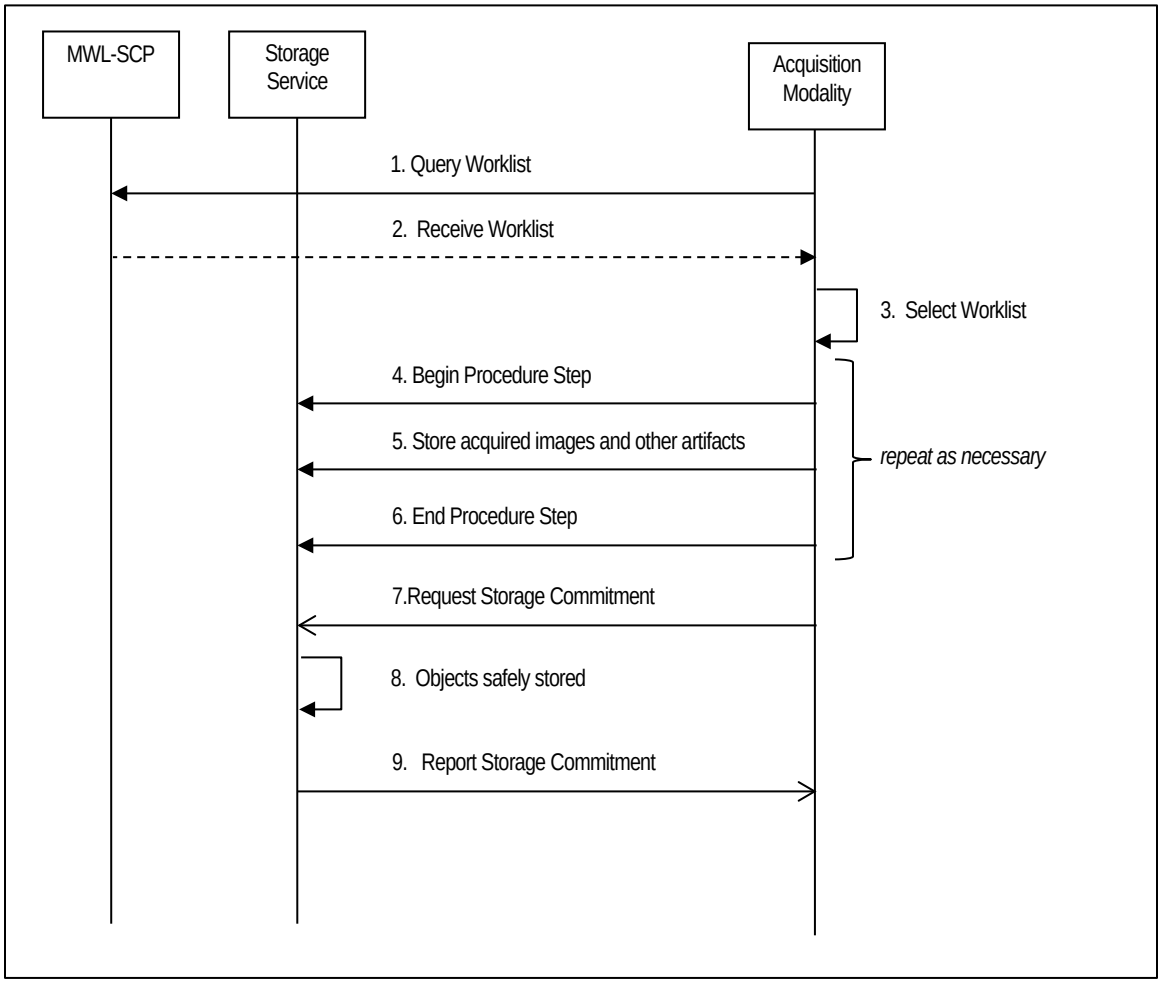
2.1.6.1 Typical modality workflow real world activities

To get a list of procedures waiting to be done, the acquisition modality sends a modality worklist query, typically with matching keys to limit the scope, to the MWL-SCP. The MWL-SCP searches the scheduled procedure request list, and responds to the acquisition modality with the worklist entries that meet the request. At the acquisition modality console, the technologist selects a worklist item.

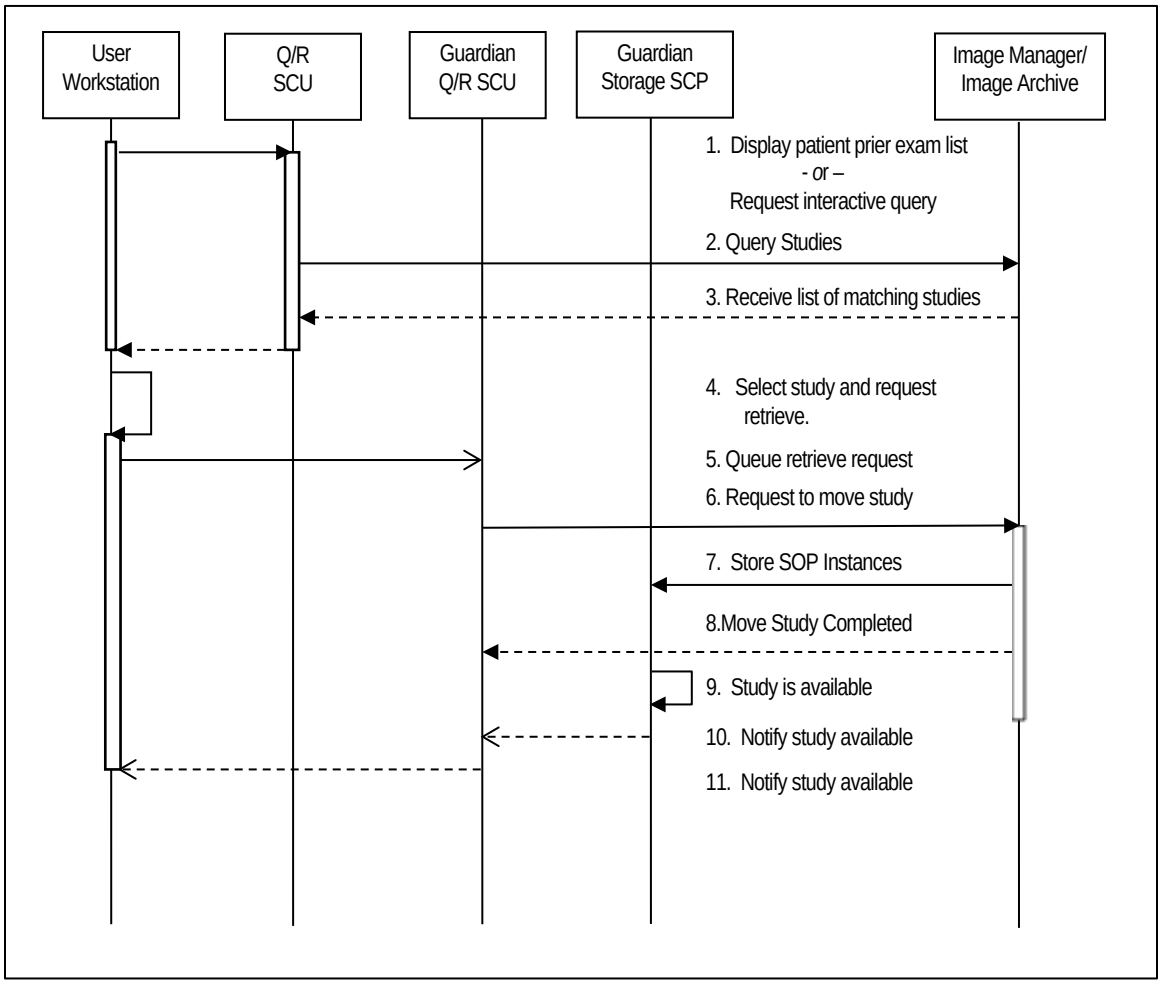
The acquisition modality sends a Modality Performed Procedure Step message to the Storage-Service telling it that the first procedure step has been initiated. The acquisition modality acquires images and other artifacts, e.g. structured reports, and sends them to the Storage-Service, which stores them. When the procedure step is completed, the acquisition modality sends a Modality Performed Procedure Step message listing the DICOM objects that were created in the step. That message might arrive even before all of the images and artifacts have been sent. If there are more procedure steps to be performed, this process repeats. Merge Unity uses the Modality Performed Procedure Steps to help determine when performed procedure is read y to be read.

The acquisition modality then sends a Storage Commitment Push model request asking the Storage-Service to take responsibility for storing the received images and artifacts. The point at which Merge Unity considers an object to be committable is configurable. Once Merge Unity

knows whether all of the objects in the Storage Commitment request can be committed, or if a configurable time limit expires, it sends a Storage Commitment report to the Acquisition Modality.



2.1.6.2 Typical interactive Query/Retrieve workflow real world activities



2.2 AE Specifications

2.2.1 Application Entity MWL-SCP

2.2.1.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes:

Table 3 - SOP Classes for “Application Entity MWL-SCP”

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	No	Yes
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	No	Yes

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

2.2.1.2 Association Policies

An association request to this AE will be accepted only if the calling AE Title is in the list of allowed MWL SCU AEs.

2.2.1.2.1 General

There are no inherent limitations for maximum PDU size. Maximum PDU size is configurable, and defaults to 100 KB.

The DICOM standard Application Context Name for DICOM 3.0 is always accepted.

Table 4 - DICOM Application Context for Application Entity MWL-SCP

Application Context Name	1.2.840.10008.3.1.1.1

2.2.1.2.2 Number of Associations

The number of simultaneous associations which this Application Entity may accept as an SCP is configurable. The maximum value for this setting is limited only by system resources.

Table 5 - Number of Associations as an Association Acceptor for “Application Entity MWL-SCP”

Maximum number of simultaneous associations	configurable

2.2.1.2.3 Asynchronous Nature

This AE does not support asynchronous communication (multiple outstanding transactions over a single association.)

2.2.1.2.4 Implementation Identifying Information

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 6 - DICOM Implementation Class and Version for “Application Entity MWL-SCP”

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.1.3 Association Initiation Policy

The MWL-SCP AE does not initiate associations.

2.2.1.4 Association Acceptance Policy

An association request to this AE will be accepted only if the calling AE Title is in the list of allowed MWL SCU AEs.

2.2.1.4.2 Activity - Verification

This AE responds to Verification requests, providing an SCU with the ability to verify whether this AE is receiving DICOM requests.

2.2.1.4.2.1 Description and sequencing of Activities

This AE will respond to a C-ECHO Verification request with a C-ECHO verification response.

2.2.1.4.2.2 Accepted Presentation Contexts

Table 7 - Acceptable Presentation Contexts for" Application Entity MWL-SCP" and "Activity - Verification"

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.1.4.2.3 SOP Specific Conformance for SOP Class

This AE provides standard conformance to the DICOM Verification Service Class. It returns one of the following status codes.

Table 8 - Verification C-ECHO Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	The operation was not successful.
Error	Failed	C000	The operation was not successful.

2.2.1.4.3 Activity – Basic Worklist Management

2.2.1.4.3.1 Description and sequencing of Activities

When a remote DICOM system requests an association with the MWL-SCP AE, the MWL-SCP AE checks whether the requesting AE Title is in the configured list of allowed Modality Worklist SCU Application Entities. If so, the association is accepted. If not, the association is rejected.

The MWL-SCP AE attempts to respond to a C-FIND request on the same association. If that fails, no retry is attempted.

2.2.1.4.3.2 Accepted Presentation Contexts

Table 9 - Acceptable Presentation Contexts for "Application Entity MWL-SCP" and "Activity – Basic Worklist Management"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.1.4.3.3 SOP Specific Conformance for SOP Classes

The MWL-SCP AE will use the search keys in a Modality Worklist C-FIND request to search for pending studies in the Scheduled list, and reply with the results.

The MWL-SCP AE provides standard conformance to the DICOM Basic Worklist Management Service Class. The Basic Worklist Manage Service AE returns one of the following status codes:

Table 10 - MWL-SCP AE C-FIND status codes

Service Status	Further Meaning	Protocol Codes	Related Fields	Description
Error	Unable to process - Invalid attribute value	C001	(0000,0901) (0000,0902)	Indicates that C-FIND request could not be performed because an illegal value was encountered in a Matching Key. The Offending Element Tag (0000,0901) identified the element. One or more of the following conditions exist: Invalid DA format in Patient's Birth Date (0010,0030). Invalid DA format in >Scheduled Procedure Step Start Date (0040,0002) Invalid TM format in >Scheduled Procedure Step Start Time (0040,0003)
	Unable to process - Failed during processing	C002	(0000,0902)	Indicates that the C-FIND request could not be performed because of an error encountered during query processing.
	Cancel	FE00		Matching terminated due to Cancel request
Success	Success	0000		Matching is complete - No final Identifier is supplied.
Pending	Pending	FF00	Identifier	Matches are continuing - Current Match is supplied.

Supported Matching and Return Key elements are listed in Table 12.

Note: All attributes listed in Table 12 are Return Key attributes, except for those which the Remarks say "Not a return key." The names of unsupported attributes appear in italics, the Return Key is marked "No," and the Return Key Type is in parenthesis.

Note: The abbreviations used in the Matching Key column of Table 12 are listed in Table 11 - Match Key Type Abbreviations.

Note: In addition to the Matching Key types listed, all supported Return Keys also support Universal Matching.

Table 11 - Match Key Type Abbreviations

Matching Key Types	
SV	Single Valued matching
UI	List of UID matching
WC	Wild Card matching

Matching Key Types	
SQ	Sequence Matching
DR	Date Range matching
(empty)	Return key only

Table 12 - Attribute Support for the Modality Worklist Information Model

Description / Module	Tag	Matching Key	Return Key	Remarks
SOP Common				
Specific Character Set	(0008,0005)	See Note "Specific Character Set"	No (1C) (unless forced – see Note)	Not supported as a return key: No expanded or replacement character sets are used. See Note "MWL Force Character Set."
Scheduled Procedure Step				
Scheduled Procedure Step Sequence	(0040,0100)	SQ	1	
>Scheduled Station AE Title	(0040,0001)	SV	1	Taken from Scanner value. If that's empty, then Modality.
>Scheduled Procedure Step Start Date	(0040,0002)	SV, DR	1	
>Scheduled Procedure Step Start Time	(0040,0003)	SV, DR	1	
>Modality	(0008,0060)	SV	1	
>Scheduled Performing Physician's Name	(0040,0006)	SV, WC	2	Value not available in worklist: - any match other than Universal Matching and equivalent Wild Card match will return no worklist entries - return value will always be zero length.
>Scheduled Procedure Step Description	(0040,0007)	SV, WC	1C	
>Scheduled Station Name	(0040,0010)	SV, WC	2	Scanner
>Scheduled Procedure Step Location	(0040,0011)	SV, WC	2	Scanner
>Pre-Medication	(0040,0012)		2C	See Note "MWL Force Return Key."
>Scheduled Procedure Step ID	(0040,0009)	SV, WC	1	

Description / Module	Tag	Matching Key	Return Key	Remarks
>Requested Contrast Agent	(0032,1070)		2C	See Note "MWL Force Return Key."
Requested Procedure				
Requested Procedure ID	(0040,1001)	SV, WC	1	
Requested Procedure Comments	(0040,1400)		3	
Requested Procedure Description	(0032,1060)	SV, WC	1C	
Requested Procedure Code Sequence	(0032,1064)	SQ	1C	
>Code Value	(0008,0100)	SV, WC	1C	
>Coding Scheme Designator	(0008,0102)		1C	"99DRSYS"+site-specific number
>Code Meaning	(0008,0104)	SV, WC	3	
Study Instance UID	(0020,000D)	UI	1	
Referenced Study Sequence	(0008,1110)		2	Returned as zero length, with no contained items.
Requested Procedure Priority	(0040,1003)	SV, WC	2	
Patient Transport Arrangements	(0040,1004)		2	Returned as zero length
Names of Intended recipients of results.	(0040,1010)		3	Ordering physician only
Imaging Service Request				
Accession Number	(0008,0050)	SV, WC	2	
Requesting Physician	(0032,1032)	SV, WC	2	
Referring Physician's Name	(0008,0090)	SV, WC	2	
Placer Issuer and Number	(0040,2016)	SV, WC	3	Placer Number only
Filler Issuer and Number	(0040,2017)	SV, WC	3	Filler Number only
Visit Identification				
Admission ID	(0038,0010)	SV, WC	2	Visit Number
Visit Status				
Current Patient Location	(0038,0300)		2	Returned as zero length
Visit Relationship				
Referenced Patient Sequence	(0008,1120)		2	Returned as zero length, with no contained items.
Patient Identification				
Patient's Name	(0010,0010)	SV, WC	1	
Patient ID	(0010,0020)	SV	1	

Description / Module	Tag	Matching Key	Return Key	Remarks
Patient Demographic				
Patients Birth Date	(0010,0030)	SV, DR	2	
Patient's Sex	(0010,0040)	SV, WC	2	
Patient Comment	(0010,4000)		3	
Patient's Weight	(0010,1030)		2	Returned as zero length
Confidentiality constraint on patient data	(0040,3001)		2	Returned as zero length
Patient Medical				
Patient State	(0038,0500)		2	Returned as zero length
Pregnancy Status	(0010,21C0)		2	Returned as zero length
Medical Alerts	(0010,2000)		2	Patient Allergies
Contrast Allergies	(0010,2110)		2	Patient Allergies
Special Needs	(0038,0050)		2	Returned as zero length

Note: All Person Name matches are case-insensitive. This applies to Matching Keys with VR=PN:

- Patient's Name (0010,0010)
- Requesting Physician (0032,1032)
- Referring Physician's Name (0008,0090)

Note: In wild card Person Name matches, each name component is matched separately:

- Omitted components are considered Universal Matches
- Wild cards do not cross component boundaries

Examples:

"^HARRY"	would match	"SMITH^**HARRY**"
	but not	"TOM^DICK^HARRY"
"S*H*"	would match	"**S**MIT**H**^JOHN^S"
	but not	"SAMSON^HARRY"
"S*^H*"	would match	"**S**OUTH^**H**ARRY"
	but not	"SOUTH^LOUIS^H"

Note: In cases where only the first character of the middle name is known, only the first character of the middle name component of a Person Name matching key needs to match, additional characters in that component of the matching key are ignored.

Note: If both Scheduled Procedure Step Start Date (0040,0002) and Scheduled Procedure Step Start Time (0040,0003) are both specified for Range Matching with compatible ranges, the corresponding date and times are considered endpoints of the range, rather than independent matching keys.

Note: For maximum usefulness, the Basic Worklist Manage Service AE supports both Requested Procedure Description (0032,1060) and Requested Procedure Code Sequence (0032,1064). If both Return Keys are specified, then Requested Procedure Description (0032,1060) and Requested Procedure Code Sequence (0032,1064) >Code Meaning (0008,0104) return identical values.

Note: The current implementation of Merge Unity modality worklist records scheduled procedures without further identifying the component scheduled procedure steps. To accommodate DICOM Modality Worklist, each procedure is considered to consist of a single procedure step.

If both Return Keys are specified, then the following return identical values:

- Requested Procedure Code Sequence (0032,1064) >Code Meaning (0008,0104) and
- Scheduled Procedure Step Sequence (0040,0100) >Scheduled Procedure Step Description (0040,0007)

Also:

- Requested Procedure ID (0040,1001) and
- Scheduled Procedure Step Sequence (0040,0100) >Scheduled Procedure Step ID (0040,0009)

The Basic Worklist Manage Service AE does not support priority processing or define priority levels.

Note: **Specific Character Set** - Modality Worklist responses use the ISO_IR 6 character set, and will not use expanded or replacement character sets. For such cases, DICOM prohibits including Specific Character Set (0008,0005) in a Modality Worklist Response Identifier.

To accommodate MWL SCUs that require the single value matching of certain requested character in this attribute, the Modality Worklist Server SCP will perform single value matching on and return any of the following supersets of ISO_IR 6:

- ISO_IR 100
- ISO_IR 101

No additional configuration is required, and this behavior cannot be suppressed; it applies only to single value matching.

Note: **MWL Force Character Set** - As noted above, Modality Worklist responses use the ISO_IR 6 character set, and will not use expanded or replacement character sets. For such cases, DICOM prohibits including Specific Character Set (0008,0005) in a Modality Worklist Response Identifier.

To accommodate MWL SCUs that require the value ISO_IR 100 in this attribute, the Modality Worklist Server SCP can be configured to respond to a Specific Character Set (0008,0005) matching or return key with that value (unless it is a specifically recognized single value match , as described above.). (ISO_IR 100 is a superset of ISO_IR 6.)

By default, this override is turned off. Merge support personnel can enable it when needed.

Note: **MWL Force Return Key** - DICOM requires that a conditional attribute (Type 1C or 2C) must not be included if the condition is not met.

To accommodate MWL SCUs that require the presence of these attributes even when the condition is not met, the Unity Modality Worklist Server SCP can be configured to unconditionally include Type 2C attributes. If this override is enabled and the condition is not met, these conditional attributes will be returned with zero length if they are matching or return keys in the MWL query. The attributes that can be forced to appear are:

- Pre-Medication (0040,0012)
- Requested Contrast Agent (0032,1070)

By default, this override is turned off.

2.2.2 Application Entity Storage-Service

For convenience, this Application Entity is referred to as the "Storage-Service AE." In fact, it is also a Modality Performed Procedure Step SCP and a Storage Commitment SCP as well as a Storage SCP.

2.2.2.1 SOP Classes

This Application Entity provides Standard Conformance to the Verification SOP Class as SCP.

Table 13 - Verification SOP Classes for “Application Entity Storage-Service”

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	No	Yes

This Application Entity provides Level 2 (Full) Standard Conformance to the following DICOM V3.0 Storage SOP Classes as an SCP.

Table 14 - Storage SOP Classes for "Application Entity Storage-Service"

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	No	Yes
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	No	Yes
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Digital Mammography Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
Digital Mammography Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	No	Yes
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	No	Yes
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	No	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	No	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	Yes
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	No	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	No	Yes
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	No	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	No	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	No	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	No	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	No	Yes
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	No	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	No	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	No	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	No	Yes
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	No	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	No	Yes
Mammography CAD Structured Report Storage	1.2.840.10008.5.1.4.1.1.88.50	No	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	No	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	No	Yes
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	No	Yes
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	No	yes

SOP Class Name	SOP Class UID	SCU	SCP
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	No	Yes
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67	No	Yes

This Application Entity provides Standard Conformance to the Modality Performed Procedure Step SOP Class as SCP.

Table 15 - Modality Performed Procedure Step SOP Classes for "Application Entity Storage-Service"

SOP Class Name	SOP Class UID	SCU	SCP
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	No	Yes

This Application Entity provides Standard Conformance to the Storage Commitment SOP Class as SCP.

Table 16 - Storage Commitment SOP Classes for "Application Entity Storage-Service"

SOP Class Name	SOP Class UID	SCU	SCP
Storage Commitment Push Model	1.2.840.10008.1.20.1	No	Yes

This AE does not operate as an SCU of any SOP class.

2.2.2.2 Association Policies

This AE will accept an association request from any AE.

This AE will initiate an association as an SCP for the purpose of sending an N-EVENT-REPORT to a Storage Commitment SCU.

2.2.2.2.2 General

There are no inherent limitations for maximum PDU size. Maximum PDU size is configurable, and defaults to 100 KB.

The DICOM standard Application Context Name for DICOM 3.0 is always accepted.

Table 17 - DICOM Application Context for "Application Entity Storage-Service"

Application Context Name	1.2.840.10008.3.1.1.1

2.2.2.2.3 Number of Associations

This AE will initiate at most one association at a time as a Storage Commitment SCP.

Table 18 - Number of Associations as an Association Initiator for “Application Entity Storage-Service”

Maximum number of simultaneous associations	1

The number of simultaneous associations which this Application Entity may accept as an SCP is configurable. The maximum value for this setting is limited only by system resources.

Table 19 - Number of Associations as an Association Acceptor for “Application Entity Storage-Service””

Maximum number of simultaneous associations	configurable

2.2.2.2.4 Asynchronous Nature

This AE does not support asynchronous communication (multiple outstanding transactions over a single association.)

2.2.2.2.5 Implementation Identifying Information

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 20 - DICOM Implementation Class and Version for “Application Entity Storage-Service”

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.2.3 Association Initiation Policy

This AE will initiate an association as a Storage Commitment SCP to the Storage Commitment SCU AE that requested Storage Commitment in a prior N-ACTION request in order to send an N-EVENT-REPORT request.

2.2.2.3.2 Activity – Report Storage Commitment

2.2.2.3.2.1 Description and Sequencing of Activities

Once the Storage Commitment status is established for all Referenced SOP Instances in a pending Storage Commitment transaction, or once the response time limit has passed, the Storage-Service AE will attempt to send an N-EVENT-REPORT. If the AE cannot send it, it will repeat trying at a configurable interval, until it is successful or configurable time limit is passed and the transaction is abandoned.

The point at which Storage Commitment is considered successful for a Stored SOP Instance is configurable. The choices are listed in Table 21.

Table 21 - Choices of Real-World Events at which Storage Commitment is considered Successful

Real-World Event	Remarks
SOP Instance Received	Useful for interface testing.
Entire Study Received	Useful for system demonstrations and interoperability validation tests.
SOP Instance is successfully archived	Standard setting for clinical use. If the long-term archive supports Storage Commitment as an SCP, then a SOP Instance is considered successfully archived only when the long-term archive reports successful Storage Commitment for it.

A configurable response time period (by default, 24 hours) limits how long a Storage Commitment transaction can wait for the commitment statuses of the Referenced SOP Instances. Any SOP Instance which has not been assigned a final commitment status by the end of this period will be arbitrarily assigned the failure status 0110H – Processing Failure. This will ensure that an N-EVENT-REPORT is guaranteed to be available within a fixed amount of time. Note that this does not guarantee that the Storage Commitment SCU will receive an N-EVENT-REPORT within a fixed time, because other reasons may delay it, e.g. network connectivity failure or either the SCU or SCP not running.

Note: If the final commitment status becomes available between the response time period expiring and actual sending of the N-EVENT-REPORT, the SOP Instance will be identified with the correct status.

The Merge Unity will not automatically delete SOP Instances until they have been safely stored in the long-term archive.

Note: The capacity of the PACS to store unarchived SOP Instances depends on the capacity of the equipment.

A properly authorized user may delete a SOP Instance, a study, or the links to a study in the long-term archive. Such a user request overrides any Storage Commitment for the affected SOP Instances.

If the Storage SCP receives a SOP Instance with the same SOP Instance UID as a previously received SOP Instance, the Storage SCP has the right to replace the previously received SOP Instance with the newly received one.

2.2.2.3.2.2 Proposed Presentation Contexts

Table 22 - Proposed Presentation Contexts for "Application Entity Storage-Service" and "Activity – Report Storage Commitment"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.2.3.2.3 SOP Specific Conformance for SOP Class

Event report retry

If the SCU is unavailable, the Storage-Service AE will retry periodically (configurable, 5 minutes by default), for a configurable time period (24 hours, by default). Once that time period has expired, the transaction will be considered stale, and deleted, even though the SCU has not received an N-EVENT-REPORT.

Commitment transaction purge

When the Storage-Service AE receives a successful acknowledgement of the N-EVENT-REPORT from the SCU, the transaction is deleted. If the Storage-Service AE receives a response status of 0115H – Invalid Argument Value, it is assumed the SCU no longer recognizes the Transaction UID, and the transaction is deleted.

Access to SOP Instances

The optional Retrieve AE Title (0008,0054) is not provided. All Q/R SCPs for an installation access the same pool of studies, and any of them can be used.

Storage Media File-Set ID (0088,0130) and Storage Media File-Set UID (0008,0140) are not used from the N-ACTION or provided in the N-EVENT-REPORT.

2.2.2.4 Association Acceptance Policy

This AE will accept an association request from any AE.

2.2.2.4.2 **Activity - Verification**

This AE responds to Verification requests, providing an SCU with the ability to verify whether this AE is receiving DICOM requests.

2.2.2.4.2.1 Description and sequencing of Activities

This AE will respond to a C-ECHO Verification requests with a C-ECHO verification response.

2.2.2.4.2.2 Accepted Presentation Contexts

Table 23 - Acceptable Presentation Contexts for “Application Entity Storage-Service” and “Activity - Verification”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.2.4.2.3 SOP Specific Conformance for SOP Class

This AE provides standard conformance to the DICOM Verification Service Class. It returns one of the following status codes.

Table 24 - Verification C-ECHO Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	The operation was not successful.
Error	Failed	C000	The operation was not successful.

2.2.2.4.3 **Activity – Process Storage request**

2.2.2.4.3.1 Description and sequencing of Activities

The Storage-Service AE accepts DICOM objects in a C-STORE request and stores them in Merge Unity exams. Exams are kept in an "in progress" state until they are determined to ready for the next step in the workflow. There is an explicit process, called "import" that moves a

study from the "in progress" state and makes it available for quality assurance, reading or use as a prior study.

The criteria for when a study is imported may be configured separately for different types of exams and the study's source. Importing is invoked either manually or automatically when these conditions are met:

- There are no open DICOM associations for this study (determined by requests received within the association.)
- There are no IN PROGRESS Modality Performed Procedure Steps for this study.
- The AE has received and stored all SOP Instances that are listed in any COMPLETED Modality Performed Procedure Step for this study. Where necessary, this requirement can be disabled through configuration.
- If this procedure is identified as producing a CAD SR, then the AE has received and stored a CAD SR for this study.
- A configurable time interval has elapsed since the most recent storage or, modality performed procedure step request was received and processed for this study.

A study can be "reverted" to have a Storage SCU add more SOP Instances to it. SOP Instances that unexpectedly arrive after a study is imported are tentatively held as a separate study or can be merged into the original study or proceed through the workflow as a separate performed procedure. This helps detect cases where, inadvertently, a procedure is performed without having told the modality to start a new study.

2.2.2.4.3.2 Accepted Presentation Contexts

Table 25 - Acceptable Presentation Contexts for “Application Entity Storage-Service” and “Activity – Process Storage request”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext.
Name	UID	Name List	UID List		Neg.
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext.
Name	UID	Name List	UID List		Neg.
CT Image Storage	1.2.840.10008.5.1.4.1.1.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
MR Image Storage	1.2.840.10008.5.1.4.1.1.4			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext.
Name	UID	Name List	UID List		Neg.
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext.
Name	UID	Name List	UID List		Neg.
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1				
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext.
Name	UID	Name List	UID List		Neg.
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext.
Name	UID	Name List	UID List		Neg.
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Angiographic BiPlane Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext.
Name	UID	Name List	UID List		Neg.
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext.
Name	UID	Name List	UID List		Neg.
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext.
Name	UID	Name List	UID List		Neg.
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext.
Name	UID	Name List	UID List		Neg.
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Note: Storage Extended Negotiation will be supported. The Storage-Service AE will respond with the information in Table 26 – Application Entity Storage-Service Extended Negotiation:

Table 26 – Application Entity Storage-Service Extended Negotiation

Field Name	Value	Description of Field
Level of Support	2	level 2 (FULL) SCP

2.2.2.4.3.3 SOP Specific Conformance for SOP Classes – Storage (all)

The Storage-Service AE requires that Patient ID (0010,0020) not be empty. This is a restriction over standard DICOM. Any SOP Instance with an empty attribute value for Patient ID (0010,0020) will be responded to with status B007 - "Warning - Data Set does not match SOP Class".

The Storage-Service AE requires that Patient ID (0010,0020) attribute value be identical for all SOP Instances in a study. If SOP Instances are received with identical SOP Class Instance UIDs (0008,0018) but differing Patient IDs (0010,0020), the Storage-Service AE will treat them as members of two different studies.

The Storage-Service AE requires that Study Date (0008,0020) not be empty. This is a restriction over standard DICOM. Any SOP Instance with an empty attribute value for Study

Date (0008,0020) will have that attribute coerced, either to the current date or to the already-established Study Date for the study.

The Storage-Service AE requires that Study Date (0008,0020) attribute value be identical for all SOP Instances in a study. If SOP Instances are received with identical SOP Class Instance UIDs (0008,0018) but differing Study Dates (0008,0020), the Storage-Service AE will coerce the Study Dates to the same value (that of the first such SOP Instance received).

The element Derivation Description (0008,2111) may be coerced if the Storage-Service AE determines that additional information needs to satisfy the Unity SOP Instance identification tests. In this case, the existing contents (if any) will be prefixed with a line that begins "DRS:", and, if the attribute was not previously empty, ends with a new line character.

If any attribute is coerced, and if that attribute is within the scope of a Group Length (xxxx,0000), then that Group Length attribute is removed from the SOP Instance.

The Storage-Service AE may be configured to automatically compress uncompressed images upon receiving them. The desired type of compression, if any, may be configured separately by image's modality and by the type and source of the image. An image that is already compressed will not be recompressed. The following types of compression are available:

- Lossy JPEG 8 Bit JPEG Baseline (Process 1) Compression
- Lossy JPEG 12 Bit JPEG Baseline (Process 4) Compression
- Lossless, non-hierarchical, first-order prediction, JPEG coding process 14 (selection value 1) Compression
- JPEG 2000 Lossless Image Compression
- JPEG 2000 Lossy Image Compression

If the image undergoes lossy compression, it is assigned a new SOP Instance UID. Merge Unity image display capabilities will resolve SOP Instance UID references, such as in presentation states and CAD SRs, to either an image's current SOP Instance UID or to a source image SOP Instance UIDs in the as a result of compression. However, unlike Merge Unity Storage SCU AEs, the Storage-Service AE does not update intra-study references to the compressed SOP Instance UID.

The Storage-Service AE expands the definition of standard DICOM status codes to represent error conditions specific to the Storage-Service AE but related to the standard meaning of the code. In response to a C-STORE request, the Storage-Service AE returns one of the following status codes.

Table 27 - Application Entity Storage-Service

C-STORE Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Operation performed properly.
Refused	Out of resources	A700	Indicates that there was not enough storage space to store the SOP Instance, or some other database or resource error prevented the SOP Instance or related information from being stored.
Refused	SOP Class not supported	A800	Indicates one or more of the following: The SOP Class of the Image in the C-STORE operation did not match the Abstract Syntax negotiated for the Presentation Context. The SOP Class UID was not recognized. The SOP Class represents an IOD that is not supported by the Storage-Service AE. These SOP Classes are: Raw Data Storage General Audio Waveform Storage Key Object Selection Document Storage
Error	Data Set does not match SOP Class	A900	Indicates either of: The Data Set does not encode an instance of the SOP Class specified. The SOP Instance UID (0008,0018), Patient ID (0010,0020), Study Instance UID (0020,000D) and/or Series Instance UID (0020,000E) was not found or was empty.
Error	Cannot understand	C005	The data set could not be parsed successfully.
Warning	Data Set does not match SOP Class	B007	Indicates one or more of the following: The Data Set does not match the SOP Class Attributes that are required to be consistent across a study differ. The SOP Class was stored anyway.
Error	Failed	C000	The operation was not successful.

2.2.2.4.4 Activity – MPPS Request

2.2.2.4.4.1 Description and sequencing of Activities

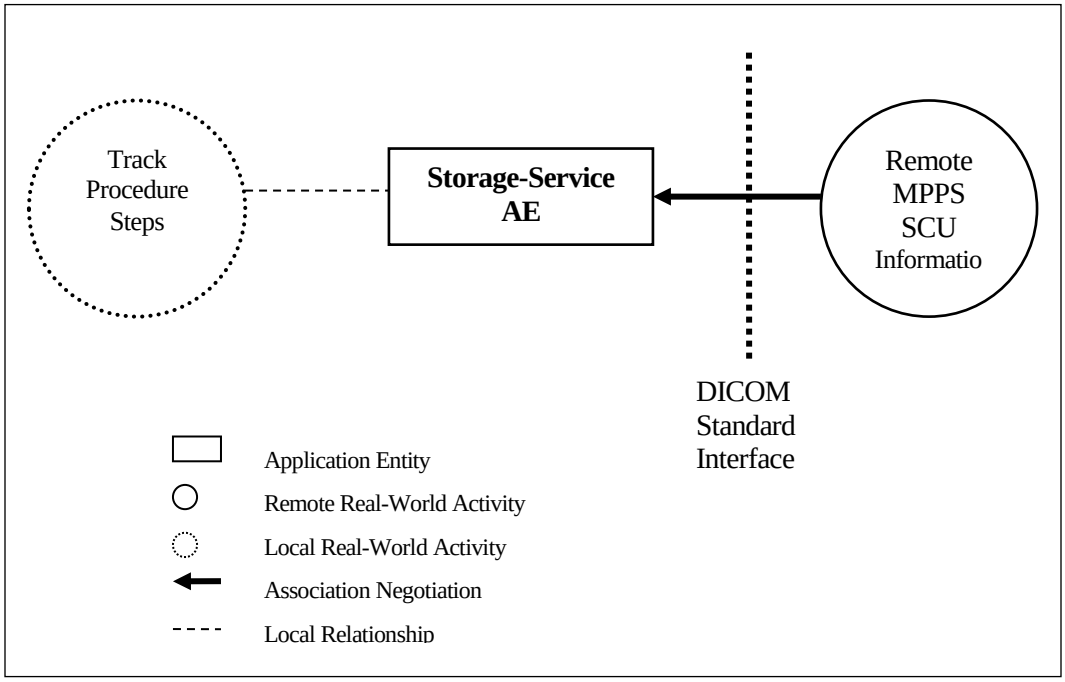
The Storage-Service AE accepts Modality Performed Step requests and tracks the progress of Modality Performed Procedure steps in a study. To prevent premature reading, studies are not automatically made available to the reading worklist until

a) Performed Procedure Steps of that study are COMPLETED or DISCONTINUED, and

b) all performed series image and non-image SOP instances have been received (C-STORE), and

c) an optional, configurable delay timer, to wait for the possible receipt of an additional, unanticipated procedure step, has expired.

SOP Instances in DISCONTINUED procedure steps remain part of the study.



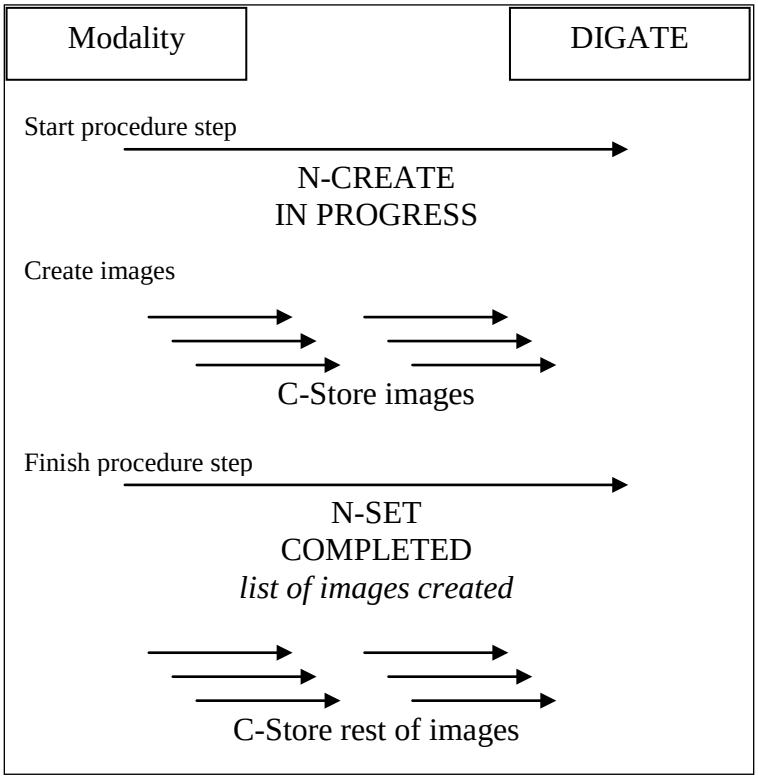
The following is the message and data flow for each modality performed procedure step in a study. This sequence may overlap for multiple steps in a study.

1. At the start of a procedure step, the modality sends an MPPS message (N-CREATE) instructing Storage SCP AE to begin tracking a new procedure step, and saying that this step is "IN PROGRESS."
2. If the step is suspended, reactivated, or cancelled, the modality sends a message (N-SET) updating the step's status to "SUSPENDED," "IN PROGRESS" or "DISCONTINUED," respectively.
3. When the step is finished, the modality sends an MPPS update message setting the step's status to "COMPLETED," and listing the DICOM images and other objects created in the procedure step.

Once a step's status is "COMPLETED" or "DISCONTINUED," there cannot be any further update messages for that step. Discontinued steps remain part of the study.

4. The "COMPLETED" status, along with the list of DICOM objects, can arrive before, during or after the objects themselves are sent.

Figure 3 - Standard MPPS Data Flow



2.2.2.4.4.2 Accepted Presentation Contexts

Table 28 - Acceptable Presentation Contexts for “Application Entity Storage-Service” and “Activity – MPPS Request”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

2.2.2.4.4.3 SOP Specific Conformance – N-CREATE

Storage-Service AE handles N-CREATE message and responds with the following status values:

Table 29 - MPPS N-CREATE Response Status

Service Status	Further Meaning	Error Code	Reason
SUCCESS	Success	0x0000	Operation performed properly.
Refused	Out of resources	A700	System unable to process the message, or failed to generate a SOP Instance UID.
Error	Data Set does not match SOP Class	A900	Error in parsing header-missing mandatory tags.

Generating SOP Instance UID If Not Present in N-CREATE

Storage-Service AE will generate a SOP Instance UID for any individual step if it is not included in N-CREATE message for that step. The SCU must save this value which is sent back in response and use it accordingly for all of the following operations.

2.2.2.4.4.4 SOP Specific Conformance – N-SET

The Storage-Service AE will accept N-SET message and respond with the following status values:

Table 30 - N-SET Response Status Values

Service Status	Further Meaning	Error Code	Reason
SUCCESS	Success	0000	Operation performed properly.
Refused	Out of resources	A700	System unable to process the message.
Error	Data Set does not match SOP Class	A900	Error in parsing header-missing mandatory tags.

2.2.2.4.1 **Activity – Receive Storage Commitment Request**

2.2.2.4.1.1 Description and sequencing of Activities

List of known DICOM Hosts: The SCU's AE Title must be among the configured, known DICOM hosts for the Storage-Service AE, otherwise the Storage-Service AE will respond with an N-ACTION rejection, and the transaction will not be stored.

Processing and acknowledgement of N-ACTION: The Storage-Service AE will accept an N-ACTION Push Model Storage Commitment Request, store the transaction contents, and send an N-ACTION response on the same association. If the Transaction ID is the same as a current outstanding Storage Commitment Request, it is considered a duplicate transmission of the same request.

Commitment timeframe: All referenced SOP instances in a transaction must have been received via Storage-Service within a configurable window (by default, 1 day before or after) surrounding the receipt of the Storage Commitment Request. Any SOP Instances which do not arrive within that window may be given a failure status of 0112H - No Such Object Instance, even if the instance was successfully stored outside of that window.

2.2.2.4.1.2 Accepted Presentation Contexts

Table 31 - Acceptable Presentation Contexts for “Application Entity Storage-Service” and “Activity – Receive Storage Commitment Request”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.2.4.1.3 SOP Specific Conformance – Storage Commitment Push Model

This section includes the SOP specific behavior, i.e. error codes, error and exception handling, time-outs, etc. The information shall be as described in the SOP specific Conformance Statement section of PS 3.4 (or relevant private SOP definition).

The behavior of an Application Entity shall be summarized as shown in Table 4.2.13. Standard as well as the manufacturer specific status codes and their corresponding behavior shall be specified.

Table 32 - Storage Commitment N-ACTION Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Explain
Refused	Unknown AE Title	0010	The calling AE Title is not in the list of valid Storage Commitment SCU AEs.
Refused	Not Supported	0122	The Storage Commitment feature is not enabled.
Error		A800	The N-ACTION request was for an unsupported SOP Class.
Error	Data Set Mismatch	A900	SOP Instance UID (0000,1001) not found in request.
Warning	Internal Error	B006	An internal error prevented this request from being processed.

2.2.3 Application Entity Q/R-Online-SCP

2.2.3.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes:

Table 33 - SOP Classes for "Application Entity Q/R-Online-SCP"

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	No	Yes
Patient Root C-FIND	1.2.840.10008.5.1.4.1.2.1.1	No	Yes
Study Root C-FIND	1.2.840.10008.5.1.4.1.2.2.1	No	Yes
Patient/Study Only C-FIND	1.2.840.10008.5.1.4.1.2.3.1	No	Yes
Patient Root C-MOVE	1.2.840.10008.5.1.4.1.2.1.2	No	Yes
Study Root C-MOVE	1.2.840.10008.5.1.4.1.2.2.2	No	Yes
Patient/Study Only C-MOVE	1.2.840.10008.5.1.4.1.2.3.2	No	Yes

This AE does not directly act as an SCU; however it invokes an instance of the Storage-SCU AE as part of C-MOVE support.

2.2.3.2 Association Policies

An association request to this AE will be accepted only if the calling AE Title is in the configured list of allowed Q/R-SCU AEs. The same list is used for both the Q/R-Online-SCP AE and the Q/R-Online/Archived-SCP AE.

2.2.3.2.2 General

There are no inherent limitations for maximum PDU size. Maximum PDU size is configurable, and defaults to 100 KB.

The DICOM standard Application Context Name for DICOM 3.0 is always accepted.

Table 34 - DICOM Application Context for Application Entity Q/R-Online-SCP

Application Context Name	1.2.840.10008.3.1.1.1

2.2.3.2.3 Number of Associations

This AE does not initiate associations. However, in the course of handling a C-MOVE request, the associated Storage-SCU AE may initiate one association per C-MOVE request.

The number of simultaneous associations which this Application Entity may accept as an SCP is configurable. The maximum value for this setting is limited only by system resources.

Table 35 - Number of Associations as an Association Acceptor for “Application Entity Q/R-Online-SCP”

Maximum number of simultaneous associations	configurable

2.2.3.2.4 **Asynchronous Nature**

The Q/R-Online-SCP AE allows a single outstanding operation on any association. Therefore, it does not support asynchronous operations window negotiation.

The Q/R-Online-SCP AE implements C-FIND-CANCEL within the processing of a C-FIND request.

2.2.3.2.5 **Implementation Identifying Information**

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 36 - DICOM Implementation Class and Version for “Application Entity Q/R-Online-SCP”

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.3.3 Association Initiation Policy

The Q/R-Online-SCP AE instructs the Storage-SCU AE to initiate associations to the storage destination when processing a C-MOVE.

2.2.3.4 Association Acceptance Policy

Each instance of the Q/R-Online-SCP AE has a configured list of allowed Q/R-SCU AEs. The Q/R-Online-SCP AE will reject an association request from an AE that is not on the list.

2.2.3.4.2 **Activity - Verification**

This AE responds to Verification requests, providing an SCU with the ability to verify whether this AE is receiving DICOM requests.

2.2.3.4.2.1 Description and sequencing of Activities

This AE will respond to a C-ECHO Verification requests with a C-ECHO verification response.

2.2.3.4.2.2 Accepted Presentation Contexts

Table 37 - Acceptable Presentation Contexts for “Application Entity Q/R-Online-SCP” and “Activity - Verification”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.3.4.2.3 SOP Specific Conformance for SOP Class

This AE provides standard conformance to the DICOM Verification Service Class. It returns one of the following status codes.

Table 38 - Verification C-ECHO Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	The operation was not successful.
Error	Failed	C000	The operation was not successful.

2.2.3.4.3 Activity – C-FIND request received

2.2.3.4.3.1 Description and sequencing of Activities

The Q/R-Online-SCP AE will locate online studies. This AE does not locate in-progress studies or studies that are archived but not currently online. (To access the union of online and archived studies, see **2.2.4 Application Entity Q/R-Online/Archived-SCP**.)

A C-FIND query is matched against and returns Instances UIDs based on Merge Unity's exam organization. See **2.1.2 Merge Unity** Exams, above, for more information.

In the case that values have been changed or coerced, a C-FIND query matches against and returns current values. See **5.1.25 Coerced/Modified fields** for details.

When a SERIES or IMAGE level C-FIND is processed, this AE will generate GSPS SOP Instances to reflect current stored display parameters. If they are selected by the C-FIND matching criteria, they are included in the C-FIND results. These generated SOP Instances may be retrieved by a subsequent C-MOVE request up to 3 days after the C-FIND. The C-MOVE

request must be to the same station as the C-FIND went to; it may go to either of the two Q/R SCP AEs on that station.

2.2.3.4.3.2 Accepted Presentation Contexts

Table 39 - Acceptable Presentation Contexts for "Application Entity Q/R-Online-SCP" and "Activity – C-FIND request received"

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Query/Retrieve Patient Root - C-FIND	1.2.840.10008.514.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Query/Retrieve Study Root – C-FIND	1.2.840.10008.514.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Query/Retrieve Patient/Study Only – C-FIND	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.3.4.3.3 SOP Specific Conformance for SOP Classes – C-FIND

This AE supports simple hierarchical queries. It does not support relational queries.

SOP Instances in In Progress studies do not appear in C-FIND results

This AE matches C-FIND search keys against current values, which may be different than the values originally received in the stored SOP Instances.

Time and DateTime matching keys do not use the timezone offset. If provided, it is ignored.

This AE supports the Instance Availability tag (0008,0056) in a C-FIND response.

- 'ONLINE" means the instances are immediately available.
- 'NEARLINE' means the instances can be retrieved programmatically from the long term archive.
- 'OFFLINE' means that instances need to be retrieved by manual intervention.

The following tables, Table 40 to Table 44, show the Unique, Required and Optional attributes that the Query/Retrieve Online AE supports. An 'X' in the FIND column indicates that the attribute is supported for matching. An 'X' in the RET column indicates that the attribute is supported for return value.

The maximum number of available result sets is configurable and may be limited based on performance.

Table 40 - Patient level attributes for the Patient Root and Patient/Study Only Query/Retrieve Information Models

Description	Tag	Type	FIND	RET
Patient's Name	(0010,0010)	R	X	X
Patient ID	(0010,0020)	U	X	X
Patient's Birth Date	(0010,0030)	O	X	X
Patient's Sex	(0010,0040)	O	X	X
Patient Comments	(0010,4000)	O		X
Number of Patient Related Studies	(0020,1200)	O		X

Table 41 - Study level attributes for the Patient Root and Patient/Study Only Query/Retrieve Information Models

Description	Tag	Type	FIND	RET
Study Date	(0008,0020)	R	X	X
Study Time	(0008,0030)	R	X	X
Accession Number	(0008,0050)	R	X	X
Study ID	(0020,0010)	R	X	X
Study Instance UID	(0020,000D)	U	X	X
Modalities in Study	(0008,0061)	O	X	X
Referring Physician's Name	(0008,0090)	O	X	X
Study Description	(0008,1030)	O	X	X
>Code Value	(0008,0100)	O	X	X
>Coding Scheme Designator	(0008,0102)	O		X
>Code Meaning	(0008,0104)	O	X	X
Name of Physician(s) Reading Study	(0008,1060)	O	X	X
Admitting Diagnoses Description	(0008,1080)	O		X
Patient's Age	(0010,1010)	O	X	X
Patient's Weight	(0010,1030)	O		X
Requesting Physician	(0032,1032)	O	X	X
Placer Issuer and number	(0040,2016)	O		X
Filler Issuer and number	(0040,2017)	O		X
Admission ID	(0038,0010)	O		X

Table 42 - Study Level Attributes for the Study Root Query/Retrieve Information model

Description	Tag	Type	FIND	RET
Study Date	(0008,0020)	R	X	X
Study Time	(0008,0030)	R	X	X
Accession Number	(0008,0050)	R	X	X
Patient's Name	(0010,0010)	R	X	X
Patient ID	(0010,0020)	R	X	X
Study ID	(0020,0010)	R	X	X
Study Instance UID	(0020,000D)	U	X	X
Modalities in Study	(0008,0061)	O	X	X
Referring Physician's Name	(0008,0090)	O	X	X
Study Description	(0008,1030)	O	X	X
Procedure Code Sequence	(0008,1032)	O		
>Code Value	(0008,0100)	O		X
>Coding Scheme Designator	(0008,0102)	O		X
>Code Meaning	(0008,0104)	O		
Name of Physician(s) Reading Study	(0008,1060)	O	X	X
Admitting Diagnoses Description	(0008,1080)	O		
Patient's Birth Date	(0010,0030)	O	X	X
Patient's Sex	(0010,0040)	O	X	X
Patient's Age	(0010,1010)	O	X	X
Number of Patient Related Studies	(0020,1200)	O		X
Requesting Physician	(0032,1032)	O	X	X
Placer Issuer and number	(0040,2016)	O		X
Filler Issuer and number	(0040,2017)	O		X
Admission ID	(0038,0010)	O		X

Table 43 - Series Level Attributes for the Patient Root and Study Root Query/Retrieve Information Models

Description	Tag	Type	FIND	RET
Modality	(0008,0060)	R	X	X
Series Number	(0020,0011)	R	X	X
Series Instance UID	(0020,000E)	U	X	X
Number of Series Related Instances	(0020,1209)	O		

Table 44 - Composite Object Instance Level Attributes for The Patient Root and the Study Root Query/Retrieve Information Models

Description	Tag	Type	FIND	RET
Instance Number	(0020,0013)	R	X	X
SOP Instance UID	(0008,0018)	U	X	X
SOP Class UID	(0008,0016)	O	X	X
Rows	(0028,0010)	O		
Columns	(0028,0011)	O		
Bits Allocated	(0028,0100)	O		
Number of Frames	(0028,0008)	O		

Table 45 - Query/Retrieve C-FIND Response Status Values

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Operation performed properly.
Refused	Out of resources	A700	
Cancel	Matching terminated due to Cancel Request	FE00	
Error	Data set does not match SOP Class	A900	Indicates that the Data Set does not encode an instance of the SOP Class specified. The SOP Instance UID (0008,0018), Patient ID (0010,0020), Study Instance UID (0020,000D) and/or Series Instance UID (0020,000E) was not found in the received image.
Failed	Failed	C000	The operation was not successful.
Failed	Failed	C001	Unity SCP cannot process the request at this time.
Failed	Cannot understand	C005	Indicates that the Data Set cannot be parsed into elements by the DICOM Gateway.
Pending	Matches are continuing	FF00	Current Match is supplied and any Optional keys supported in the same manner as Required Keys.
Pending	Matches are continuing	FF01	Warning that one or more Optional Keys were not supported for existence and/or matching for this identifier.

2.2.3.4.4 Activity – C-MOVE request received

2.2.3.4.4.1 Description and sequencing of Activities

A C-MOVE request identifies SOP Instances in a study and asks this AE to store them to a Storage SCP AE that is identified by AE Title in the C-MOVE request. The destination AE Title must be in the configured list of storage destinations for the station hosting this AE.

The Q/R-Online-SCP AE will locate online studies. This AE does not locate in-progress studies or studies that are archived but not currently online. (To access the union of online and archived studies, see **2.2.4 Application Entity Q/R-Online/Archived-SCP**.)

A C-MOVE request is matched against and returns SOP Instances based on Merge Unity exam organization. See **2.1.2 Merge Unity** Exams, above, for more information.

In the case that values have been changed or coerced, a C-MOVE request is matched against current values, and the current values are coerced in the stored SOP Instances. See **5.1.25 Coerced/Modified fields** for details.

A C-MOVE request can return Interoperability SOP Instances generated for the study by Merge Unity. If there was a C-FIND request to for this study to either Q/R SCP on this station within the previous 3 days, then C-MOVE will recognize the SOP Instance UIDs returned in the C-FIND for generated Interoperability SOP Instances. If there has not been a C-FIND or C-MOVE request for this study in that time, this AE will generate Interoperability SOP instances that the C-MOVE can return.

During the move operation the Q/R-Online-SCP AE will return C-MOVE responses to the requester with a status equal to pending. The response will contain the number of remaining, completed, failed, and warning sub-operations for the study being moved.

If no matches are found, the Q/R-Online-SCP AEs will return status equal to success. The value will be zero for the number of completed, failed, and warning sub-operations.

2.2.3.4.4.2 Accepted Presentation Contexts

Table 46 - Acceptable Presentation Contexts for “Application Entity Q/R-Online-SCP” and “Activity – C-MOVE request received”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Query/Retrieve Patient Root - C-MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Query/Retrieve Study Root – C-MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Query/Retrieve Patient/Study Only – C-MOVE	1.2.840.10008.5.1.4.1.2.3.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.3.4.4.3 SOP Specific Conformance for SOP Classes

Table 47 - C-MOVE Response Status

Service Status	Further Meaning	Status Code	Reason
Success	Success	0000	Explain
Refused	Out of resources	A701	Unable to calculate number of matches
Refused	Out of resources	A702	Unable to perform sub-operations, or unable to perform storage of images to move destination
Refused	Out of resources	A801	Move destination unknown
Cancel	Matching terminated due to Cancel Request	FE00	Sub-operations complete – One or more failures
Failed	Data set does not match SOP Class	A900	Indicates that the Data Set does not encode an instance of the SOP Class specified. The SOP Instance UID (0008,0018), Patient ID (0010,0020), Study Instance UID (0020,000D) and/or Series Instance UID (0020,000E) was not found in the received image.
Failed	Failed	C000	The operation was not successful.
Failed	Unable to process		Unity SCP is unable to process C-MOVE requests at this time.
Pending	Sub operations are continuing	FF00	Current Storage sub-operation is continuing
Pending	Sub-operations are continuing	FF02	The Storage sub-operation is expected to require a long period of time to complete. The SCU may break the Association at any time but the operation will continue to completion.
Warning	Sub-Operations Complete	B000	One or more Failures

2.2.4 Application Entity Q/R-Online/Archived-SCP

2.2.4.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes:

Table 48 - SOP Classes for "Application Entity Q/R-Online/Archived-SCP"

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	No	Yes
Patient/Study Only C-FIND	1.2.840.10008.5.1.4.1.2.3.1	No	Yes
Patient/Study Only C-MOVE	1.2.840.10008.5.1.4.1.2.3.2	No	Yes

This AE does not directly act as an SCU; however it invokes an instance of the Storage-SCU AE as part of C-MOVE support.

2.2.4.2 Association Policies

An association request to this AE will be accepted only if the calling AE Title is in the configured list of allowed Q/R-SCU AEs. The same list is used for both the Q/R-Online-SCP AE and the Q/R-Online/Archived-SCP AE.

2.2.4.2.2 General

There are no inherent limitations for maximum PDU size. Maximum PDU size is configurable, and defaults to 100 KB.

The DICOM standard Application Context Name for DICOM 3.0 is always accepted.

Table 49 - DICOM Application Context for "Application Entity Q/R-Online/Archived-SCP"

Application Context Name	1.2.840.10008.3.1.1.1

2.2.4.2.3 Number of Associations

This AE does not initiate associations. However, in the course of handling a C-MOVE request, the associated Storage-SCU AE may initiate one association per C-MOVE request.

The number of simultaneous associations which this Application Entity may accept as an SCP is configurable. The maximum value for this setting is limited only by system resources.

Table 50 - Number of Associations as an Association Acceptor for "Application Entity Q/R-Online/Archived-SCP"

Maximum number of simultaneous associations	configurable

2.2.4.2.4 **Asynchronous Nature**

The Q/R-Online/Archived-SCP AE allows a single outstanding operation on any association. Therefore, it does not support asynchronous operations window negotiation.

The Q/R-Online/Archived-SCP AE implements C-FIND-CANCEL within the processing of a C-FIND request.

2.2.4.2.5 **Implementation Identifying Information**

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 51 - DICOM Implementation Class and Version for "Application Entity Q/R-Online/Archived-SCP"

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.4.3 Association Initiation Policy

The Q/R-Online/Archived-SCP AE instructs the Storage-SCU AE to initiate associations to the storage destination when processing a C-MOVE.

2.2.4.4 Association Acceptance Policy

Each instance of the Q/R-Online/Archived-SCP AE has a configured list of allowed Q/R-SCU AEs. The Q/R-Online/Archived-SCP AE will reject an association request from an AE that is not on the list.

2.2.4.4.2 **Activity - Verification**

This AE responds to Verification requests, providing an SCU with the ability to verify whether this AE is receiving DICOM requests.

2.2.4.4.2.1 Description and sequencing of Activities

This AE will respond to a C-ECHO Verification requests with a C-ECHO verification response.

2.2.4.4.2.2 Accepted Presentation Contexts

Table 52 - Acceptable Presentation Contexts for “Application Entity Q/R-Online/Archived-SCP” and “Activity - Verification”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.4.4.2.3 SOP Specific Conformance for SOP Class

This AE provides standard conformance to the DICOM Verification Service Class. It returns one of the following status codes.

Table 53 - Verification C-ECHO Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	The operation was not successful.
Error	Failed	C000	The operation was not successful.

2.2.4.4.3 Activity – C-FIND request received

2.2.4.4.3.1 Description and sequencing of Activities

The Q/R-Online/Archived-SCP AE will locate online and archived studies. Where a study is both online and archived, the online version is located. Where a study is not online and has been archived multiple times, the most recent archived version of the study is located. This AE does not locate in-progress studies.

A C-FIND query is matched against and returns Instances UIDs based on Merge Unity's exam organization. See **2.1.2 Merge Unity** Exams for more information.

In the case that values have been changed or coerced, a C-FIND query is matched against and returns current values. See **5.1.25 Coerced/Modified fields** for details.

This AE does not support SERIES or IMAGE level C-FIND queries.

2.2.4.4.3.2 Accepted Presentation Contexts

Table 54 - Acceptable Presentation Contexts for "Application Entity Q/R-Online/Archived-SCP" and "Activity – C-FIND request received"

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Query/Retrieve Patient/Study Only – C-FIND	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.4.4.3.3 SOP Specific Conformance for SOP Class – C-FIND

This AE supports simple hierarchical queries. It does not support relational queries.

SOP Instances in In Progress studies do not appear in C-FIND results

This AE matches C-FIND search keys against current values, which may be different than the values originally received in the stored SOP Instances.

Time and DateTime matching keys do not use the timezone offset. If provided, it is ignored.

This AE supports the Instance Availability tag (0008,0056) in a C-FIND response.

- 'ONLINE" means the instances are immediately available.
- 'NEARLINE' means the instances can be retrieved programmatically from the long term archive.
- 'OFFLINE' means that instances need to be retrieved by manual intervention.

The following tables, Table 55 to Table 56, show the Unique, Required and Optional attributes that the Unity Query/Retrieve server supports. An 'X' in the FIND column indicates that the attribute is supported for matching. An 'X' in the RET column indicates that the attribute is supported for return value.

The maximum number of available result sets is configurable and may be limited based on performance.

Table 55 - Patient level attributes for the Patient/Study Only Query/Retrieve Information Model

Description	Tag	Type	FIND	RET
Patient's Name	(0010,0010)	R	X	X
Patient ID	(0010,0020)	U	X	X
Patient's Birth Date	(0010,0030)	O	X	X
Patient's Sex	(0010,0040)	O	X	X
Patient Comments	(0010,4000)	O		X
Number of Patient Related Studies	(0020,1200)	O		X

Table 56 - Study level attributes for the Patient/Study Only Query/Retrieve Information Model

Description	Tag	Type	FIND	RET
Study Date	(0008,0020)	R	X	X
Study Time	(0008,0030)	R	X	X
Accession Number	(0008,0050)	R	X	X
Study ID	(0020,0010)	R	X	X
Study Instance UID	(0020,000D)	U	X	X
Modalities in Study	(0008,0061)	O	X	X
Referring Physician's Name	(0008,0090)	O	X	X
Study Description	(0008,1030)	O	X	X
>Code Value	(0008,0100)	O	X	X
>Coding Scheme Designator	(0008,0102)	O		X
>Code Meaning	(0008,0104)	O	X	X
Name of Physician(s) Reading Study	(0008,1060)	O	X	X
Admitting Diagnoses Description	(0008,1080)	O		X
Patient's Age	(0010,1010)	O	X	X
Patient's Weight	(0010,1030)	O		X
Requesting Physician	(0032,1032)	O	X	X
Placer Issuer and number	(0040,2016)	O		X
Filler Issuer and number	(0040,2017)	O		X
Admission ID	(0038,0010)	O		X

Table 57 - Query/Retrieve C-FIND Response Status Values

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Operation performed properly.
Refused	Out of resources	A700	
Cancel	Matching terminated due to Cancel Request	FE00	
Error	Data set does not match SOP Class	A900	Indicates that the Data Set does not encode an instance of the SOP Class specified. The SOP Instance UID (0008,0018), Patient ID (0010,0020), Study Instance UID (0020,000D) and/or Series Instance UID (0020,000E) was not found in the received image.
Failed	Failed	C000	The operation was not successful.
Failed	Failed	C001	Unity SCP cannot process the request at this time.
Failed	Cannot understand	C005	Indicates that the Data Set cannot be parsed into elements by the DICOM Gateway.
Pending	Matches are continuing	FF00	Current Match is supplied and any Optional keys supported in the same manner as Required Keys.
Pending	Matches are continuing	FF01	Warning that one or more Optional Keys were not supported for existence and/or matching for this identifier.

2.2.4.4.4 Activity – C-MOVE request received

2.2.4.4.4.1 Description and sequencing of Activities

A C-MOVE request identifies a study and asks this AE to store the SOP Instances in it to a Storage SCP AE that is identified by AE Title in the C-MOVE request. The destination AE Title must be in the configured list of storage destinations for the station hosting this AE.

The Q/R-Online/Archived-SCP AE will locate online and archived studies. Where a study is both online and archived, the online version is located. Where a study is not online and has been archived multiple times, the most recent archived version of the study is located. This AE does not locate in-progress studies.

A C-MOVE request from an SCU for an offline instance will return status success even though no objects are sent. The study will be queued for manual restore and it will be up to the requestor to check later to see if the study is online.

A C-MOVE request is matched against and returns SOP Instances based on Merge Unity**Error! No text of specified style in document.**'s exam organization. See **2.1.2 Merge Unity** Exams, above, for more information.

In the case that values have been changed or coerced, a C-MOVE request is matched against current values, and the current values are coerced in the stored SOP Instances. See **5.1.25 Coerced/Modified fields** for details.

A C-MOVE request can return Interoperability SOP Instances generated for the study by Merge Unity**Error! No text of specified style in document.**. If there was a C-FIND request to for this study to either Q/R SCP on this station within the previous 3 days, then C-MOVE will recognize the SOP Instance UIDs returned in the C-FIND for generated Interoperability SOP Instances. If there has not been a C-FIND or C-MOVE request for this study in that time, this AE will generate Interoperability SOP instances that the C-MOVE can return.

A C-MOVE request to this AE may locate ONLINE studies and may locate OFFLINE studies. A restore request is queued for each OFFLINE study.

A C-MOVE request for an ONLINE study is handled the same way by this AE as it is by the Q/R-Online-SCP AE; the Storage-SCU AE is instructed store the SOP Instances of each study, in turn, to the Storage-SCU AE identified by the C-MOVE destination AE Title. While this is happening, the Q/R-Online/Archived-SCP AE monitors the progress of the restore requests; any that complete are added to the list of ONLINE studies to be moved. Once there are no more ONLINE studies to be moved, if there are still pending restore requests, this AE will wait for up to a configurable timeout for more to complete. If that timeout expires and there are still restores pending, those studies are included in the count of failed sub-operations. Any incomplete restore requests remain pending, so that a subsequent C-MOVE operation may be successful.

During the move operation the Q/R-Online/Archived-SCP AE will return C-MOVE responses to the requester with a status equal to pending. The response will contain the number of remaining, completed, failed, and warning sub-operations for the study being moved.

If no matches are found, the Q/R-Online/Archived-SCP AEs will return status equal to success. The value will be zero for the number of completed, failed, and warning sub-operations.

This AE does not support SERIES or IMAGE level C-MOVE requests.

2.2.4.4.4.2 Accepted Presentation Contexts

Table 58 - Acceptable Presentation Contexts for “Application Entity Q/R-Online/Archived-SCP” and “Activity – C-MOVE request received”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Query/Retrieve Patient/Study Only – C-MOVE	1.2.840.10008.5.1.4.1.2.3.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.4.4.4.3 SOP Specific Conformance for SOP Classes

Table 59 - C-MOVE Response Status

Service Status	Further Meaning	Status Code	Reason
Success	Success	0000	Explain
Refused	Out of resources	A701	Unable to calculate number of matches
Refused	Out of resources	A702	Unable to perform sub-operations, or unable to perform storage of images to move destination
Refused	Out of resources	A801	Move destination unknown
Cancel	Matching terminated due to Cancel Request	FE00	Sub-operations complete – One or more failures
Failed	Data set does not match SOP Class	A900	Indicates that the Data Set does not encode an instance of the SOP Class specified. The SOP Instance UID (0008,0018), Patient ID (0010,0020), Study Instance UID (0020,000D) and/or Series Instance UID (0020,000E) was not found in the received image.
Failed	Failed	C000	The operation was not successful.
Failed	Unable to process		Unity SCP is unable to process C-MOVE requests at this time.
Pending	Sub operations are continuing	FF00	Current Storage sub-operation is continuing
Pending	Sub-operations are continuing	FF02	The Storage sub-operation is expected to require a long period of time to complete. The SCU may break the Association at any time but the operation will continue to completion.
Warning	Sub-Operations Complete	B000	One or more Failures

2.2.5 Application Entity Q/R-SCU

2.2.5.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes:

Table 60 - SOP Classes for "Application Entity Q/R-SCU"

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	No
Patient Root Query/Retrieve IM Find	1.2.840.10008.5.1.4.1.2.1.1	Yes	No
Study Root Query/Retrieve IM Find	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Patient Study Only Query/Retrieve IM Find	1.2.840.10008.5.1.4.1.2.3.1	Yes	No
Patient Root Query/Retrieve IM Move	1.2.840.10008.5.1.4.1.2.1.2	Yes	No
Study Root Query/Retrieve IM Move	1.2.840.10008.5.1.4.1.2.2.2	Yes	No
Patient/Study Only Query/Retrieve IM Move	1.2.840.10008.5.1.4.1.2.3.2	Yes	No

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

2.2.5.2 Association Policies

This AE may initiate an association to an AE that is configured as a Q/R SCP destination for this workstation.

2.2.5.2.2 General

There are no inherent limitations for maximum PDU size. Maximum PDU size is configurable, and defaults to 100 KB.

The DICOM standard Application Context Name for DICOM 3.0 is always proposed.

Table 61 - DICOM Application Context for "Application Entity Q/R-SCU"

Application Context Name	1.2.840.10008.3.1.1.1

2.2.5.2.3 Number of Associations

Each instance of the Q/R-SCU AE will initiate at most a single association at a time. There may be multiple instances of this AE in a Merge Unity installation.

Table 62 - Number of Associations as an Association Initiator for “Application Entity Q/R-SCU”

Maximum number of simultaneous associations	1

This AE does not accept associations.

2.2.5.2.4 **Asynchronous Nature**

The Storage-SCU AE allows a single outstanding operation on any association. Therefore, it does not support asynchronous operations window negotiation.

2.2.5.2.5 **Implementation Identifying Information**

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 63 - DICOM Implementation Class and Version for “Application Entity Q/R-SCU”

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.5.3 Association Initiation Policy

2.2.5.3.2 **Activity - Verification**

2.2.5.3.2.1 Description and Sequencing of Activities

When the operator asks to test the remote AE, this AE will attempt to initiate an association for Verification Service in order to perform a C-ECHO-RQ.

2.2.5.3.2.2 Proposed Presentation Contexts

For a Verification request, the DICOM Guardian AE will propose the Presentation Contexts listed in **Table 64**.

Table 64 - Proposed Presentation Contexts for "Application Entity Q/R-SCU" and "Activity - Verification"

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

2.2.5.3.2.3 SOP Specific Conformance for SOP Class

The application reports the success or failure of the Verification request to the user.

2.2.5.3.3 Activity – C-FIND

2.2.5.3.3.1 Description and Sequencing of Activities

The Q/R-SCU AE may initiate a C-FIND query request in response to any of several real-world events:

- A user may interactively request the query.
- Automated queries may be issued based on a configured schedule.
- Pre-fetch rules may be configured for various procedure types.
- A request to view the relevant prior studies for a patient may include results from querying configured external DICOM systems.

2.2.5.3.3.2 Proposed Presentation Contexts

Table 65 - Proposed Presentation Contexts for "Application Entity Q/R-SCU"

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	See Note 1

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	See Note 1
Patient/Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	See Note 1

Note 1: Find Extended Negotiation will be supported. This AE will negotiate with the following information:

Table 66 - Query Extended Negotiation

Field Name	Value	Description of Field
Relational-queries	1	relational queries supported

2.2.5.3.3.3 SOP Specific Conformance for SOP Classes

When requesting an association to perform a C-FIND, the Q/R-SCU AE will propose all of the presentation contexts shown in **Table 65**. It will select the data model C-FIND SOP Class based on the needs of specific query and on which presentation contexts were negotiated.

For an interactive query, if the C-FIND is successful, the resulting matches are displayed to the user. If it is unsuccessful or times out, the user receives a warning message.

For an automated query, if the C-FIND is successful, the results are returned to the invoking program for appropriate processing. If it is unsuccessful or times out, then an error code is returned to the invoking program, which logs the failure of this iteration of the processing.

The Q/R-SCU AE expects the SCP AE to support the matching and return keys as described in **Table 67**.

Table 67 - Attribute Support for “Application Entity Q/R-SCU”

C-FIND

Description	Tag	Matching Key	Return Key	Remarks
Patient ID	(0010,0020)	Single Value, Wild Card, Universal	Y	Single Value match required. Wild Card match optional
Patient Name	(0010,0010)	Single Value, Wild Card, Universal	Y	At minimum, Last Name match required.
Patient Birth Date	(0010,0030)	Single Value, Range, Universal	Y	Matching required
Patient Sex	(0010,0040)	Single Value, Universal	Y	Matching required
Study Instance UID	(0020,000D)	Single Value, List of UID, Universal	Y	Matching required
Study ID	(0020,0010)	Single Value, Universal	Y	Matching optional
Study Date	(0008,0020)	Single Value, Range, Universal	Y	Matching optional
Study Time	(0008,0030)	Single Value, Range, Universal	Y	Matching optional
Accession Number	(0008,0050)	Single Value, Universal	Y	Matching optional
Referring Physician	(0008,0090)	Single Value, Wild Card, Universal	Y	Matching optional
Study Description	(0008,1030)	Single Value, Wild Card, Universal	Y	Matching optional
Series Instance UID	(0020,000E)	Single Value, List of UID, Universal	Y	Matching required
Modality	(0008,0060)	Single Value, Universal	Y	Matching optional
SOP Instance UID	(0008,0018)	List of UID, Universal	Y	Matching optional
Modalities In Study	(0008,0061)	Single Value,		Matching optional
Placer Order	(0040,2016)	Universal	Y	Matching optional
Filler Order	(0040,2017)	Universal	Y	Matching optional

2.2.5.3.4 Activity C-MOVE

2.2.5.3.4.1 Description and Sequencing of Activities

The Q/R-SCU AE may initiate a C-MOVE retrieve request in response to any of several real-world events:

- A user may interactively request a study returned by a query.
- Automated queries will retrieve studies meeting the configured criteria.

- Pre-fetch rules will retrieve studies meeting the configured criteria.
- A user may request to restore relevant prior studies for a patient.

2.2.5.3.4.2 Proposed Presentation Contexts

Table 68 - Proposed Presentation Contexts for "Application Entity Q/R-SCU"

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	See Note
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	See Note
Patient/Study Only Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	See Note

Note: Find Extended Negotiation will be supported. This AE will negotiate with the following information:

Table 69 - Move Extended Negotiation

Field Name	Value	Description of Field
Relational-retrieval	1	relational retrieval supported

2.2.5.3.4.3 SOP Specific Conformance for SOP Classes

The selection of C-MOVE data model is based on which Presentation Contexts were accepted during negotiation and the requirements of the retrieve request. Typically, an IMAGE level Study Root C-MOVE is preferred. If an acceptable Abstract Syntax is not negotiated, the retrieve request is abandoned and an error is logged.

Table 70 - Attribute Support for "Application Entity Q/R-SCU" C-MOVE Study Information Model

Description	Tag	Matching Key	Remarks
Study Instance UID	(0020,000D)	Required	Exact Match Required
Series Instance UID	(0020,000E)	Required	Exact Match Required
SOP Instance UID	(0008,0018)	Required	List of UID Match Required

If a C-MOVE request receives an error status, the retrieve request is abandoned and an error is logged.

2.2.5.4 Association Acceptance Policy

The Storage-SCU AE does not accept associations.

2.2.6 Application Entity Storage-SCU

2.2.6.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes:

Table 71 - SOP Classes for "Application Entity Storage-SCU"

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	Yes	No
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	No
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	No
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	No
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	No
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	No
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	No
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Yes	No
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	No

SOP Class Name	SOP Class UID	SCU	SCP
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	No
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	No
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	No
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	No
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Yes	No
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	No
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	No
X-Ray Angiographic BiPlane Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	No
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	No
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	No
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	No
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	No
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	No
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	No
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Yes	No
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Yes	No
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Yes	No
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Yes	No
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	Yes	No
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	No
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Yes	No
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	No
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67	Yes	No

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

2.2.6.2 Association Policies

2.2.6.2.2 General

There are no inherent limitations for maximum PDU size. Maximum PDU size is configurable, and defaults to 100 KB.

The DICOM standard Application Context Name for DICOM 3.0 is always proposed.

Table 72 - DICOM Application Context for "Application Entity Storage-SCU"

Application Context Name	1.2.840.10008.3.1.1.1

2.2.6.2.3 Number of Associations

Each instance of the Storage-SCU AE will initiate at most a single association at a time. There may be multiple instances of this AE in a Merge Unity installation.

Table 73 - Number of Associations as an Association Initiator for "Application Entity Storage-SCU"

Maximum number of simultaneous associations	1

This AE does not accept associations.

2.2.6.2.4 Asynchronous Nature

The Storage-SCU AE allows a single outstanding operation on any association. Therefore, it does not support asynchronous operations window negotiation.

2.2.6.2.5 Implementation Identifying Information

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 74 - DICOM Implementation Class and Version for "Application Entity Storage-SCU"

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.6.3 Association Initiation Policy

2.2.6.3.2 **Activity - Verification**

2.2.6.3.2.1 Description and Sequencing of Activities

When the operator asks to test the remote AE, this AE will attempt to initiate an association for Verification Service in order to perform a C-ECHO-RQ.

2.2.6.3.2.2 Proposed Presentation Contexts

Table 75 - Proposed Presentation Contexts for “Application Entity Storage-SCU” and “Activity - Verification”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name List**	**UID List**		**Negotiation**
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.6.3.2.3 SOP Specific Conformance for SOP Class

The application reports the success or failure of the Verification request to the user.

2.2.6.3.3 **Activity – Send SOP Instances to a DICOM Destination**

2.2.6.3.3.1 Description and Sequencing of Activities

Each station that hosts instances of the Storage-SCU AE can have a configured list of known DICOM storage destinations.

The Storage-SCU AE may initiate C-STORE requests in response to any of several real-world events:

- A user selects a study and requests that some or all of it is sent to a selected Storage-Service AE destination.
- A user selects a study and submits a queued request for some or all of that study to be sent by a background server subsystem to a selected Storage AE destination.
- The Q/R-Online-SCP AE or Q/R-Online/Archived-SCP AE instructs that SOP Instances be sent as part of processing a C-MOVE request.

- The auto-route feature may, based on configurable rules, request some or all of a study be sent to the configured Storage AE destination. Typically, a request is queued to the server subsystem that performs background DICOM Storage, but it in some cases it will be sent directly from the station were the auto-route event was triggered.

The Merge Unity user interface can be configured to offer either or both of a "Copy" or "Send" function. For either, the user selects one or more studies to be transferred, the destination to send them to, and can optionally select which series of the study are to be sent. In addition, the user can select whether or not to generate interoperability SOP Instances.

If the "Copy" function is used, then the storage request is passed directly to an instance of the Storage-SCU AE. If the "Send" function is used, then the request is placed on a queue. The Messenger application incorporates an instance of the Storage-SCU AE. An instance of the Messenger application, which may be elsewhere in the network, retrieves the request from the queue and passes it to its Storage-SCU AE.

Before initiating an association, the Storage-SCU AE prepares a study. These operations happen on a copy, the original study not modified.

- If de-identification was requested, perform the changes described in **5.1.25.2 De-identification**.
- Update attributers to current values, as described in **5.1.25.1 Outbound Attribute Update**.
- Generate any requested Interoperability SOP Instances.
- Perform any desired image compression or decompression.

Each instance of the Storage-SCU AE processes a single request for a single study at a time. To process the request, the Storage-SCU AE will initiate an association as a Storage SCU. The Storage AE will attempt to send all of the selected SOP Instances of a study on a single association, and then closes the association.

2.2.6.3.3.2 Proposed Presentation Contexts

The Storage-SCU AE proposes Presentation Contexts consisting of a single Abstract Syntax and a single Transfer Syntax. An Abstract Syntax may appear in multiple proposed Presentation Contexts – once for each Transfer Syntax it can be provided in. This allows the Storage SCP AE to accept multiple Transfer Syntaxes for each Abstract Syntax.

The Storage-SCU AE sends each study in a single, separate association. The list of proposed Presentation Contexts is constructed based on the SOP Classes of the SOP Instances to be sent and the current Transfer Syntax of each SOP Instance, with duplicate entries eliminated.

The Storage-SCU AE will propose a Presentation Context with the SOP Instance's SOP Class as Abstract Syntax and its current Transfer Syntax. If the current transfer syntax is not Implicit VR Little Endian, it will also propose two additional Presentation Contexts for that Abstract Syntax, one with an Implicit VR Little Endian Transfer Syntax and one with an Explicit VR Little Endian Transfer Syntax.

The "current Transfer Syntax" for a SOP Instance is defined as follows:

IF the Storage-SCU AE has been asked to send a compressed or decompressed copy of the SOP Instance,

THEN the "current" Transfer Syntax is that of the compressed or decompressed copy of the SOP Instance,

ELSE the "current" Transfer Syntax is the Transfer Syntax of the SOP Instance as it currently exists.

Table 76 - Proposed Presentation Contexts for “Application Entity Storage-SCU” and “Activity – Send SOP Instances to a DICOM Destination”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
MR Image Storage	1.2.840.10008.5.1.4.1.1.4			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Angiographic BiPlane Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

2.2.6.3.3.3 SOP Specific Conformance for SOP Classes

If the Presentation Context corresponding to the SOP Instance's current Transfer Syntax accepted, that what will be used to C-STORE that SOP Instance. If not, and the corresponding Presentation Context with Explicit VR Little Endian Transfer Syntax is accepted, then that is what will be used. If not, and the corresponding Presentation Context with Implicit VR Little Endian Transfer syntax is accepted, than that will be used.

If a C-STORE request returns error status code, the remainder of the study is not sent, the association is closed, and an error is logged. If this is an interactive request, the user interface displays a message.

2.2.6.4 Association Acceptance Policy

Each AE does not initiate associations.

2.2.7 Application Entity Print-SCU

2.2.7.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes:

Table 77 - SOP Classes for “Application Entity Print-SCU”

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	Yes	No
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Yes	No

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

2.2.7.2 Association Policies

2.2.7.2.2 General

There are no inherent limitations for maximum PDU size. Maximum PDU size is configurable, and defaults to 100 KB.

The DICOM standard Application Context Name for DICOM 3.0 is always proposed.

Table 78 - DICOM Application Context for “Application Entity Print-SCU”

Application Context Name	1.2.840.10008.3.1.1.1

2.2.7.2.3 Number of Associations

Each application instance of the Print-SCU AE will initiate at most a single association at a time.

Note: However, there may be multiple application instances of the Print-SCU in a single Merge Unity installation.

Table 79 - Number of Associations as an Association Initiator for “Application Entity Print-SCU”

Maximum number of simultaneous associations	1

This AE does not accept associations.

2.2.7.2.4 Asynchronous Nature

The Print-SCU AE allows a single outstanding operation on any association. Therefore, it does not support asynchronous operations window negotiation.

2.2.7.2.5 Implementation Identifying Information

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 80 - DICOM Implementation Class and Version for “Application Entity Print-SCU”

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.7.3 Association Initiation Policy

2.2.7.3.2 Activity - Verification

2.2.7.3.2.1 Description and Sequencing of Activities

In response to a user request to perform an "Echo Test" of a DICOM AE, the Print AE will initiate an association as a Verification SCU. Upon completion of the test (i.e. a C-ECHO response is received or a configured "timeout" interval elapses) the Print AE terminates the association.

2.2.7.3.2.2 Proposed Presentation Contexts

For a Verification request, the Print Formatter AE will propose the Presentation Contexts listed in Table 81 - Proposed Presentation Contexts

Table 81 - Proposed Presentation Contexts for “Application Entity Print-SCU”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name List**	**UID List**		**Negotiation**
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

2.2.7.3.2.3 SOP Specific Conformance for SOP Class

The success or failure of the Verification request is displayed on the user interface.

2.2.7.3.3 Activity - Print

2.2.7.3.3.1 Description and Sequencing of Activities

The user interface presents the user with the list of target printers that have been configured. The user selects one or more studies to be printed, the destination printer, and the selected printing options. The print request with the associated printing options is placed on a queue. The Print Formatter application incorporates an instance of the Print-SCU AE. An instance of the Print Formatter application, which may be elsewhere in the network, retrieves the request from the queue and passes it to its Print-SCU AE.

To process the request, the Print-SCU AE will initiate an association as a Print SCU. The association is negotiated either once per page or once per job based on configuration parameters. The Print AE will attempt to send all of the selected images of a study that are appropriate to the association (per page or per job), and then closes the association.

2.2.7.3.3.2 Proposed Presentation Contexts

The list of presentation contexts that the Print-SCU AE can propose is defined in Table 82 - Proposed Presentation Contexts .

Table 82 - Proposed Presentation Contexts for “Application Entity Print-SCU” and “Activity - Print”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name List**	**UID List**		**Negotiation**
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

2.2.7.3.3.3 SOP Specific Conformance for – N-GET

This request is used to obtain any printer specific information for logging purposes.

If an error is returned by the SCP the print job is terminated and the association is closed. The printer status is checked after each image is sent. If the printer does not have normal status, the SCU will wait until the printer returns to normal status before continuing.

2.2.7.3.3.4 SOP Specific Conformance – N-CREATE Film Session

The application may be configured to create a single page per Film Session or multiple pages per film session. A Film Session UID is provided by the SCU.

The following tags may be part of the creation request. Configurable tags are optional for the SCU, but may be provided from the configuration if required by the SCP.

Description	Tag	Value	Remarks
Copies	(2000,0010)	Established by User	Automatic
Priority	(2000,0020)	Established by User	Automatic
Film Session Label	(2000,0050)	Print Job Title is used	Automatic
Medium Type	(2000,0030)	Configurable	Optional
Film Destination	(2000,0040)	Configurable	Optional

Configurable settings may only be performed by authorized personnel.

If an error is returned by the SCP the print job is deleted and the association is closed. The printer status is checked after each image is sent. If the printer does not have normal status, the SCU will wait until the printer returns to normal status before continuing.

2.2.7.3.3.5 SOP Specific Conformance - N-CREATE Film Box

A Film Box UID is provided by the SCU.

The following tags may be part of the creation request. Configurable tags are optional for the SCU, but may be provided from the configuration if required by the SCP.

Description	Tag	Value	Remarks
Image Display Format	(2010,0010)	Established by User	Automatic
Film Orientation	(2010,0030)	Established by User	Automatic
Film Size ID	(2010,0050)	Configurable	Optional
Medium Type	(2000,0030)	Configurable	Optional
Magnification Type	(2010,0060)	Configurable	Optional
Max Density	(2010,0130)	Configurable	Optional
Min Density	(2010,0120)	Configurable	Optional
Smoothing Type	(2010,0080)	Configurable	Optional
Border Density	(2010,0100)	Configurable	Optional
Trim	(2010,0140)	Configurable	Optional
Empty Image Density	(2010,0110)	Configurable	Optional
Req Decimate Crop	(2020,0040)	Configurable	Optional
Req Resolution ID	(2020,0050)	Configurable	Optional

Configurable settings may only be performed by authorized personnel.

If an error is returned by the SCP the print job is deleted and the association is closed. The printer status is checked after each image is sent. If the printer does not have normal status, the SCU will wait until the printer returns to normal status before continuing.

2.2.7.3.3.6 SOP Specific Conformance – N-SET Image Box

The following tags may be part of the set request. Configurable tags are optional for the SCU, but may be provided from the configuration if required by the SCP.

True-size (Requested Image Size) is supported in one of two ways. If it is supported by the SCP, then the dimensions of the image are sent to the SCP in the DICOM proscribed way. If it is not supported, then the application sends and image of the appropriate page size to the SCP so that the desired size is achieved.

Description	Tag	Value	Remarks
Image Position	(2020,0010)	Based on Page Format and Orientation	Automatic
Requested Image Size	(2020,0030)	Based on configuration settings AND image size	Based on configuration
Configuration Info	(2010,0130)	Established based on configuration AND study Modality	Automatic
Magnification Type	(2010,0060)	Configurable	Optional
Smoothing Type	(2010,0080)	Configurable	Optional
Polarity	(2020,0020)	Configurable	Optional

Configurable settings may only be performed by authorized personnel.

If an error is returned by the SCP the print job is deleted and the association is closed. The printer status is checked after each image is sent. If the printer does not have normal status, the SCU will wait until the printer returns to normal status before continuing.

2.2.7.3.3.7 SOP Specific Conformance – N-ACTION

After successful construction of a print job, a print request is issued.

If an error is returned by the SCP the print job is deleted and the association is closed. The printer status is checked after each image is sent. If the printer does not have normal status, the SCU will wait until the printer returns to normal status before continuing.

2.2.7.3.3.8 SOP Specific Conformance – N-DELETE

A print job is deleted using this command when an error occurs.

2.2.7.4 Association Acceptance Policy

This AE does not accept associations.

2.2.8 Application Entity Guardian-Storage-SCU

2.2.8.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes:

Table 83 - SOP Classes for “Application Entity Guardian-Storage-SCU”

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	Yes	No
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	No

SOP Class Name	SOP Class UID	SCU	SCP
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	No
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	No
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	No
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	No
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	No
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Yes	No
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	No
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	No
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	No
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	No
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	No
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Yes	No
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	No
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	No
X-Ray Angiographic BiPlane Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	No
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	No
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	No
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	No
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	No
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	No
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	No
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Yes	No
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Yes	No

SOP Class Name	SOP Class UID	SCU	SCP
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Yes	No
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Yes	No
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	Yes	No
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	No
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	No
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Yes	No
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	No
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67	Yes	No
Storage Commitment Push Model	1.2.840.10008.1.20.1	Yes*	No

* When acting as a Storage Commitment Push Model SCU, this AE emulates the Guardian-Storage-Commitment-SCU AE.

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

2.2.8.2 Association Policies

2.2.8.2.2 General

There are no inherent limitations for maximum PDU size. Maximum PDU size is configurable, and defaults to 100 KB.

The DICOM standard Application Context Name for DICOM 3.0 is always proposed.

Table 84 - DICOM Application Context for “Application Entity Guardian-Storage-SCU”

Application Context Name	1.2.840.10008.3.1.1.1

2.2.8.2.3 Number of Associations

The DICOM Guardian-Storage-SCU AE will initiate at most a single association at a time.

Table 85 - Number of Associations as an Association Initiator for “Application Entity Guardian-Storage-SCU”

Maximum number of simultaneous associations	1

This AE does not accept associations.

2.2.8.2.4 Asynchronous Nature

The Storage-SCU AE allows a single outstanding operation on any association. Therefore, it does not support asynchronous operations window negotiation.

2.2.8.2.5 Implementation Identifying Information

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 86 - DICOM Implementation Class and Version for “Application Entity Guardian-Storage-SCU”

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.8.3 Association Initiation Policy

2.2.8.3.2 Activity - User-Requested Verification

2.2.8.3.2.1 Description and Sequencing of Activities

When the operator asks to test the DICOM Archive Storage SCP, the Guardian-Storage-SCU AE will attempt to initiate an association for Verification Service in order to perform a C-ECHO-RQ.

2.2.8.3.2.2 Proposed Presentation Contexts

Table 87 - Proposed Presentation Contexts for “Application Entity Guardian-Storage-SCU” and “Activity - User-Requested Verification”

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended
Name	UID	Name List	UID List		Negotiation
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.8.3.2.3 SOP Specific Conformance for SOP Class

The application reports the success or failure of the Verification request to the user.

2.2.8.3.3 Activity - Programmatic Verification

2.2.8.3.3.1 Description and Sequencing of Activities

When the application hosting the Guardian-Storage-SCU AE first starts up, this AE will attempt to initiate an association for Verification Service in order to perform a C-ECHO-RQ.

When the application hosting the Guardian-Storage-SCU AE has the DICOM Archive Storage SCP AE marked as unavailable, it will periodically attempt to initiate an association for Verification Service in order to perform a C-ECHO-RQ.

2.2.8.3.3.2 Proposed Presentation Contexts

Table 88 - Proposed Presentation Contexts for "Application Entity Guardian-Storage-SCU"

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.8.3.3.3 SOP Specific Conformance for SOP Class

If this AE cannot establish an association with the DICOM Archive, or if it receives a failure response to the C-ECHO request, it will mark the DICOM Archive as unavailable.

2.2.8.3.4 Activity - Send SOP Instances to a DICOM Archive

2.2.8.3.4.1 Description and Sequencing of Activities

The DICOM Guardian puts study organization information and other types of information into DICOM Raw Data SOP Instances. A DICOM Archive must be able to store Raw Data SOP Instances, and return them when requested.

Before initiating an association, the Guardian-Storage-SCU AE prepares a study. These operations happen on a copy, the original study not modified.

- Update attributers to current values, as described in **5.1.25.1 Outbound Attribute Update**.
- Generate any configured Interoperability SOP Instances.

- Generate Raw Data SOP Instances, as described in **2.1.3 Wrapped Raw Data SOP Instances**.

- Perform any desired image compression or decompression.

Each instance of the Storage-SCU AE processes a single request for a single study at a time. To process the request, the Storage-SCU AE will initiate an association as a Storage SCU. The Storage AE will attempt to send all of the selected SOP Instances of a study on a single association, and then closes the association.

2.2.8.3.4.2 Proposed Presentation Contexts

The Guardian-Storage-SCU AE proposes Presentation Contexts consisting of a single Abstract Syntax and a single Transfer Syntax. An Abstract Syntax may appear in multiple proposed Presentation Contexts – once for each Transfer Syntax it can be provided in. This allows the DICOM Archive's Storage SCP AE to accept multiple Transfer Syntaxes for each Abstract Syntax.

The Guardian-Storage-SCU AE sends each study in a single, separate association. The list of proposed Presentation Contexts is constructed based on the SOP Classes of the SOP Instances to be sent and the current Transfer Syntax of each SOP Instance, with duplicate entries eliminated.

The Guardian-Storage-SCU AE will propose a Presentation Context with the SOP Instance's SOP Class as Abstract Syntax and its current Transfer Syntax. If the current transfer syntax is not Implicit VR Little Endian, it will also propose two additional Presentation Contexts for that Abstract Syntax, one with an Implicit VR Little Endian Transfer Syntax and one with an Explicit VR Little Endian Transfer Syntax.

The "current Transfer Syntax" for a SOP Instance is defined as follows:

IF the Guardian-Storage-SCU AE has been asked to send a compressed or decompressed copy of the SOP Instance,

THEN the "current" Transfer Syntax is that of the compressed or decompressed copy of the SOP Instance,

ELSE the "current" Transfer Syntax is the Transfer Syntax of the SOP Instance as it currently exists.

Table 89 - Proposed Presentation Contexts for “Application Entity Guardian-Storage-SCU” and “Activity - Send SOP Instances to a DICOM Archive”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
MR Image Storage	1.2.840.10008.5.1.4.1.1.4			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Angiographic BiPlane Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22			SCU	None

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128			SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

2.2.8.3.4.3 SOP Specific Conformance - Storage

A DICOM Archive must be able to accept and store Raw Data SOP Instances.

If the Presentation Context corresponding to the SOP Instance's current Transfer Syntax accepted, that what will be used to C-STORE that SOP Instance. If not, and the corresponding Presentation Context with Explicit VR Little Endian Transfer Syntax is accepted, then that is what will be used. If not, and the corresponding Presentation Context with Implicit VR Little Endian Transfer syntax is accepted, than that will be used.

If a C-STORE request returns error status code, the remainder of the study is not sent, the association is closed, and an error is logged.

2.2.8.3.5 Activity - Request Storage Commitment from DICOM Archive

2.2.8.3.5.1 Description and Sequencing of Activities

If the DICOM Archive is identified as supporting Storage Commitment SCP, then after the SOP Instances of a study have been successfully sent to the DICOM Archive, the Guardian-Storage-SCU AE will open an association to the DICOM Archive Storage Commitment SCP AE in order to send an N-ACTION Push Model Storage Commitment request of those SOP Instances.

Although the association comes from the Guardian-Storage-SCU AE, the Calling AE Title of the association request contains the AE Title of the Guardian-Storage-Commitment-SCU AE, instead. This will cause the DICOM Archive to send the eventual Storage Commitment N-EVENT-REPORT to the Guardian-Storage-Commitment-SCU AE.

If the Guardian-Storage-SCU AE receives a successful response to the N-ACTION request, it marks the stored SOP Instances as awaiting storage commitment.

This AE does not accept a Storage Commitment N-EVENT-REPORT on the same association as the N-ACTION request was sent on.

This AE does not accept associations, and so cannot receive an N-EVENT-REPORT on a new association. See **2.2.11.4.3 Activity - Process Storage Commitment Report** for a description of the processing of the N-EVENT-REPORT.

2.2.8.3.5.2 Proposed Presentation Contexts

Table 90 - Proposed Presentation Contexts for “Application Entity Guardian Storage SCU” AND "Activity Request Storage Commitment from DICOM Archive"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name List**	**UID List**		**Negotiation**
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.8.3.5.3 SOP Specific Conformance for SOP Class

If the Guardian-Storage-SCU AE receives a failure response to the N-ACTION request, the set of archived DICOM SOP Instances in the study will have failed to have Storage Committed. The database will be updated and an audit event will be added for the study.

2.2.8.4 Association Acceptance Policy

This AE does not accept associations. The Storage Commitment N-EVENT-REPORT is directed to the Guardian-Storage-Commitment-SCU AE.

2.2.9 Application Entity Guardian-Q/R-SCU

2.2.9.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes:

Table 91 - SOP Classes for “for “Application Entity Guardian-Q/R-SCU”

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	Yes	No
Study Root Query/Retrieve IM Find	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Study Root Query/Retrieve IM Move	1.2.840.10008.5.1.4.1.2.2.2	Yes	No

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

2.2.9.2 Association Policies

2.2.9.2.2 General

The DICOM Guardian Q/R AE contains no limitations for maximum PDU size and the PDU size is configurable.

The DICOM standard Application Context Name for DICOM 3.0 is always proposed.

Table 92 - DICOM Application Context for “Application Entity Guardian-Q/R-SCU”

Application Context Name	1.2.840.10008.3.1.1.1

2.2.9.2.3 Number of Associations

The DICOM Guardian-Q/R-SCU AE may initiate multiple associations for a single study in order to overlap C-MOVE operations, up to a configured limit.

Table 93 - Number of Associations as an Association Initiator for “Application Entity Guardian-Q/R-SCU”

Maximum number of simultaneous associations	configurable

This AE does not accept associations.

2.2.9.2.4 Asynchronous Nature

The Guardian-Q/R-SCU AE requests a single outstanding operation on any association. Therefore, it does not support asynchronous operations window negotiation.

2.2.9.2.5 Implementation Identifying Information

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 94 - DICOM Implementation Class and Version for "Application Entity Guardian-Q/R-SCU"

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.9.3 Association Initiation Policy

2.2.9.3.2 Activity - User-Requested Verification

2.2.9.3.2.1 Description and Sequencing of Activities

The Guardian-Q/R-SCU AE will initiate an association in response to a user or programmatic verification request.

When the operator asks to test the DICOM Archive Query/Retrieve SCP, the Guardian-Q/R-SCU AE will attempt to initiate an association for Verification Service in order to perform a C-ECHO-RQ.

2.2.9.3.2.2 Proposed Presentation Contexts

Table 95 - Proposed Presentation Contexts for "Application Entity Guardian-Q/R-SCU" and "Activity - User-Requested Verification"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name List**	**UID List**		**Negotiation**
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

2.2.9.3.2.3 SOP Specific Conformance for SOP Class

The application reports the success or failure of the Verification request to the user.

2.2.9.3.3 Activity - Programmatic Verification

2.2.9.3.3.1 Description and Sequencing of Activities

When the application hosting the Guardian-Q/R-SCU AE first starts up, this AE will attempt to initiate an association for Verification Service in order to perform a C-ECHO-RQ.

When the application hosting the Guardian-Q/R-SCU AE has the DICOM Archive Query/Retrieve SCP AE marked as unavailable, it will periodically attempt to initiate an association for Verification Service in order to perform a C-ECHO-RQ.

2.2.9.3.3.2 Proposed Presentation Contexts

Table 96 - Proposed Presentation Contexts for "Application Entity Guardian-Q/R-SCU" and "Activity - Programmatic Verification"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name List**	**UID List**		**Negotiation**
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

2.2.9.3.3.3 SOP Specific Conformance for SOP Class

If the C-ECHO request is successful, then the application marks the DICOM Archive Query/Retrieve SCP AE as available, and will process restore requests.

If it is unsuccessful, then the DICOM Archive Query/Retrieve SCP AE is marked as unavailable. Restore requests will remain queued.

2.2.9.3.4 Activity - Restore Study

2.2.9.3.4.1 Description and Sequencing of Activities

Requests to restore a study from the DICOM Archive are queued for the Guardian to process. Each restore request is for a single study.

To process a restore request, the Q/R-SCU AE will attempt to open multiple associations, in order to overlap restoring the SOP Instances. The maximum number of associations to attempt to open is configurable.

C-MOVE requests are distributed among the open associations. Each C-MOVE request is for a single series. Restores for series with more than a configurable number of SOP Instances will be split into multiple C-MOVEs. This helps overlap operations; in addition, some DICOM Q/R SCPs that have a limit on the number of SOP Instances that can be listed in a single C-MOVE.

Some DICOM Q/R SCPs have a limit on the number of SOP Instances that can be moved in a single association, even across multiple C-MOVEs. This AE can be configured to track the number of SOP Instances restored in an association, and when that limit is reached, the AE closes and attempts to reopen the associations.

Each C-MOVE is a Study Root IMAGE level request specifying a Study Instance UID, Series Instance UID, and a list of SOP Instance UIDs.

2.2.9.3.4.2 Proposed Presentation Contexts

Table 97 - Proposed Presentation Contexts for “Application Entity Guardian-Q/R-SCU” and " Activity - Restore Study"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Study Root Query/Retrieve IM Move	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	See Note

Note: Move Extended Negotiation will be negotiated with the following information:

Table 98 - Move Extended Negotiation

Field Name	Value	Description of Field
Relational-retrieval	1	relational retrieval supported

2.2.9.3.4.3 SOP Specific Conformance for SOP Class(es)

Table 99 - Attribute Support for “Application Entity Guardian-Q/R-SCU” C-MOVE Study Information Model

Description	Tag	Matching Key	Remarks
Study Instance UID	(0020,000D)	Required	Exact Match Required
Series Instance UID	(0020,000E)	Required	Exact Match Required
SOP Instance UID	(0008,0018)	Required	List of UID Match Required

If a C-MOVE receives a failure Status Code, the study restore is abandoned.

2.2.9.4 Association Acceptance Policy

This AE does not accept associations.

2.2.10 Application Entity Guardian-Storage-Service

2.2.10.1 SOP Classes

This Application Entity provides Level 2 (Full) Standard Conformance to the following DICOM V3.0 Storage SOP Classes as an SCP.

Table 100 - SOP Classes for "Application Entity Guardian-Storage-Service"

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	No	Yes
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	No	Yes
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	No	Yes
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	No	Yes
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	No	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	No	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	Yes
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	No	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	No	Yes
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	No	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	No	Yes
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	No	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	No	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	No	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	Yes
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	No	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	No	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	No	Yes

SOP Class Name	SOP Class UID	SCU	SCP
X-Ray Angiographic BiPlane Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	No	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	No	Yes
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	No	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	No	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	No	Yes
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	No	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	No	Yes
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	No	Yes
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	No	Yes
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	No	Yes
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	No	Yes
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	No	Yes
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	No	Yes
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	No	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	No	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	No	Yes
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	No	Yes
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	No	Yes
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	No	Yes
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67	No	Yes

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

2.2.10.2 Association Policies

This AE will accept an association request from any AE.

2.2.10.2.2 General

There are no inherent limitations for maximum PDU size. Maximum PDU size is configurable, and defaults to 100 KB.

The DICOM standard Application Context Name for DICOM 3.0 is always accepted.

Table 101 - DICOM Application Context for Application Entity Guardian-Storage-Service

Application Context Name	1.2.840.10008.3.1.1.1

2.2.10.2.3 Number of Associations

This AE does not initiate associations when acting as a Guardian-Storage-Service AE.

The number of simultaneous associations which this Application Entity may accept as an SCP is configurable. The maximum value for this setting is limited only by system resources.

Table 102 - Number of Associations as an Association Acceptor for "Application Entity Guardian-Storage-Service"

Maximum number of simultaneous associations	configurable

2.2.10.2.4 Asynchronous Nature

This AE does not support asynchronous communication (multiple outstanding transactions over a single association.)

2.2.10.2.5 Implementation Identifying Information

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 103 - DICOM Implementation Class and Version for "Application Entity Guardian-Storage-Service"

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.10.3 Association Initiation Policy

This AE does not initiate associations when acting as a Guardian-Storage-Service AE.

2.2.10.4 Association Acceptance Policy

This AE will accept an association request from any AE.

2.2.10.4.2 Activity - Verification

This AE responds to Verification requests, providing an SCU with the ability to verify whether this AE is receiving DICOM requests.

2.2.10.4.2.1 Description and sequencing of Activities

This AE will respond to a C-ECHO Verification requests with a C-ECHO verification response.

2.2.10.4.2.2 Accepted Presentation Contexts

Table 104 - Acceptable Presentation Contexts for “Application Entity Guardian-Storage-Service” and " Activity - Verification"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.10.4.2.3 SOP Specific Conformance for SOP Class

This AE provides standard conformance to the DICOM Verification Service Class. It returns one of the following status codes.

Table 105 - Verification C-ECHO Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	The operation was not successful.
Error	Failed	C000	The operation was not successful.

2.2.10.4.3 Activity - Process Storage request

2.2.10.4.3.1 Description and sequencing of Activities

The Guardian-Storage-Service AE works in coordination with the Guardian-Q/R-SCU AE. When The Guardian-Q/R-SCU AE issues C-MOVE requests for a study, it also provides the Guardian-Storage-Service AE with the complete list of SOP Instances that will be retrieved for the study.

The received SOP Instances of a study being retrieved are kept in an "in progress" state until all of the expected SOP Instances for the study have been stored. At that point, the study automatically goes through a process called "import" which makes it available for use as a prior study. In addition, the Guardian-Q/R-SCU AE is sent an acknowledgement that the study has been successfully retrieved.

The Guardian-Storage-Service AE is an instance of the Storage-Service AE, with special behavior to support its role in the Guardian. The notification from the Guardian-Q/R-SCU AE triggers this special behavior. When this AE receives SOP Instances for a study that the

Guardian-Q/R-SCU AE has not notified this AE to expect, then this AE behaves as a Storage-Service AE for that study, not as a Guardian-Storage-Service AE.

2.2.10.4.3.2 Accepted Presentation Contexts

Table 106 - Acceptable Presentation Contexts for “Application Entity Guardian-Storage-Service” and “Activity - Process Storage request”

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Intra-oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
MR Image Storage	1.2.840.10008.5.1.4.1.1.4			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Angiographic BiPlane Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50			SCP	See Note

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128			SCP	See Note
		Implicit VR Little Endian	1.2.840.10008.1.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50		
		JPEG Baseline (Process 4)	1.2.840.10008.1.2.4.51		
		Lossless JPEG Process 14	1.2.840.10008.1.2.4.57		

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext.**
Name	**UID**	**Name List**	**UID List**		**Neg.**
		Lossless FOP JPEG Process 14	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
		RLE Lossless	1.2.840.10008.1.2.5		

Note: Storage Extended Negotiation will be supported. The Storage-Service AE will respond with the information in **Table 107**:

Table 107 – "Application Entity Guardian-Storage-Service" Storage Extended Negotiation

Field Name	Value	Description of Field
Level of Support	2	level 2 (FULL) SCP

2.2.10.4.3.3 SOP Specific Conformance for SOP Classes

Table 108 - "Application Entity Guardian-Storage-Service" C-STORE Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Operation performed properly.
Refused	Out of resources	A700	Indicates that there was not enough storage space to store the SOP Instance, or some other database or resource error prevented the SOP Instance or related information from being stored.
Error	Data Set does not match SOP Class	A900	Indicates either of: The Data Set does not encode an instance of the SOP Class specified. The SOP Instance UID (0008,0018), Patient ID (0010,0020), Study Instance UID (0020,000D) and/or Series Instance UID (0020,000E) was not found or was empty.
Error	Cannot understand	C005	The data set could not be parsed successfully.
Warning	Data Set does not match SOP Class	B007	Indicates one or more of the following: The Data Set does not match the SOP Class

Service Status	Further Meaning	Error Code	Reason
			The SOP Class was stored anyway.
Error	Failed	C000	The operation was not successful.

2.2.11 Application Entity Guardian-Storage-Commitment-SCU

2.2.11.1 SOP Classes

This Application Entity provides Level 2 (Full) Standard Conformance to the following DICOM V3.0 Storage SOP Classes as an SCP.

Table 109 - SOP Classes for "Application Entity Guardian-Storage-Commitment-SCU"

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	No	Yes
Storage Commitment Push Model	1.2.840.10008.1.20.1	Yes	No

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

2.2.11.2 Association Policies

This AE will accept an association request from any AE.

2.2.11.2.2 **General**

There are no inherent limitations for maximum PDU size. Maximum PDU size is configurable, and defaults to 100 KB.

The DICOM standard Application Context Name for DICOM 3.0 is always accepted.

Table 110 - DICOM Application Context for Application Entity Guardian-Storage-Commitment-SCU

Application Context Name	1.2.840.10008.3.1.1.1

2.2.11.2.3 **Number of Associations**

The DICOM Guardian-Storage-SCU AE will initiate at most a single association at a time.

Table 111 - Number of Associations as an Association Initiator for “Application Entity Guardian-Storage-Commitment-SCU”

Maximum number of simultaneous associations	1

The number of simultaneous associations which this Application Entity may accept as an SCU is configurable. The maximum value for this setting is limited only by system resources.

Note: In DICOM Storage Commitment Push Model, the SCU accepts association requests.

Table 112 - Number of Associations as an Association Acceptor for “Application Entity Guardian-Storage-Commitment-SCU”

Maximum number of simultaneous associations	configurable

2.2.11.2.4 Asynchronous Nature

This AE does not support asynchronous communication (multiple outstanding transactions over a single association.)

2.2.11.2.5 Implementation Identifying Information

The Implementation Identifying Information is specified below.

The Implementation Identifying Information is modified when it is deemed useful to track a significant change to the DICOM interface implementation.

Table 113 - DICOM Implementation Class and Version for “Application Entity Guardian-Storage-Commitment-SCU”

Implementation Class UID	2.16.840.1.113786.0.13
Implementation Version Name	DRSYS_V13

2.2.11.3 Association Initiation Policy

This AE will initiate an association for Storage Commitment in order to reattempt a Storage Commitment transaction. It will send an N-ACTION request to the DICOM Archive Storage Commitment SCP AE.

2.2.11.3.2 Activity - Request Storage Commitment from DICOM Archive

2.2.11.3.2.1 Description and Sequencing of Activities

If an N-EVENT-REPORT for an outstanding Storage Commitment transaction is not received within the allotted time, this AE will issue another Storage Commitment Push Model N-ACTION request – up to the maximum number of retries. Both the allotted time and maximum number of retries are configurable.

This AE does not accept a Storage Commitment N-EVENT-REPORT on the same association as the N-ACTION request was sent on.

If no N-EVENT-REPORT message is received, and all retries have been used, this will be deemed as a failure. In other words, the set of archived DICOM SOP Instances in the study will have failed to have Storage Committed. The database will be updated and an audit event will be added for the study.

2.2.11.3.2.2 Proposed Presentation Contexts

Table 114 - Proposed Presentation Contexts for “Application Entity Guardian Storage SCU” AND "Activity Request Storage Commitment from DICOM Archive"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name List**	**UID List**		**Negotiation**
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.11.3.2.3 SOP Specific Conformance for SOP Class

If the Guardian-Storage-Commitment-SCU AE receives a failure response to the N-ACTION request, the set of archived DICOM SOP Instances in the study will have failed to have Storage Committed. The database will be updated and an audit event will be added for the study.

2.2.11.4 Association Acceptance Policy

This AE will accept an association request from any AE.

2.2.11.4.2 Activity - Verification

This AE responds to Verification requests, providing an SCU with the ability to verify whether this AE is receiving DICOM requests.

2.2.11.4.2.1 Description and sequencing of Activities

This AE will respond to a C-ECHO Verification requests with a C-ECHO verification response.

2.2.11.4.2.2 Accepted Presentation Contexts

Table 115 - Acceptable Presentation Contexts for “Application Entity Guardian-Storage-Commitment-SCU” and " Activity - Verification"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.11.4.2.3 SOP Specific Conformance for SOP Class

This AE provides standard conformance to the DICOM Verification Service Class. It returns one of the following status codes.

Table 116 - Verification C-ECHO Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	The operation was not successful.
Error	Failed	C000	The operation was not successful.

2.2.11.4.3 Activity - Process Storage Commitment Report

2.2.11.4.3.1 Description and sequencing of Activities

The Guardian-Storage-Commitment-SCU AE receives N-EVENT-REPORT requests for Storage Commitment transactions. The transaction may have originated from the original request from the Guardian-Storage-SCU AE (emulating the Guardian-Storage-Commitment-SCU AE), or from a retry initiated by the Guardian-Storage-Commitment-SCU AE.

2.2.11.4.3.2 Accepted Presentation Contexts

Table 117 - Acceptable Presentation Contexts for "Application Entity Guardian-Storage-Commitment-SCU" and "Activity - Process Storage Commitment Report"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

2.2.11.4.3.3 SOP Specific Conformance for SOP Class

The Guardian-Storage-Commitment-SCU AE accepts and processes N-EVENT-REPORT notifications for Storage Commitment Transactions that it may have initiated or that may have been initiated by the Guardian-Storage-SCU AE. All of the SOP Instances referenced in the N-ACTION are for a single study.

Storage Commitment Request Successful

If the notification indicates that storage commitment is successful for all of the referenced SOP Instances, then the Guardian-Storage-Commitment-SCU AE notes that these SOP Instances have been successfully archived.

Storage Commitment Request Complete – Failure Exists

If the notification indicates that storage commitment is not successful for some or all of the referenced SOP Instances, then the Guardian-Storage-Commitment-SCU AE notes that the study that these SOP Instances belong to has not been successfully archived.

Storage Commitment – No Notification

If the Guardian-Storage-Commitment-SCU AE does not receive an N-EVENT-REPORT from the Storage Commitment SCP within the allotted time, it will issue another Storage Commitment N-ACTION request – up to the maximum number of retries.

Both the allotted time and the maximum number of retries are configurable per Storage Commitment SCP.

If no N-EVENT-REPORT message is received and all retries have been used, this will be deemed a failure, and the Guardian-Storage-Commitment-SCU AE notes that the study that these SOP Instances belong to has not been successfully committed.

2.3 Network Interfaces

2.3.1 Physical Network Interface

The application is indifferent to the physical medium over which TCP/IP executes; which is dependent on the underlying operating system and hardware.

2.3.2 Additional Protocols

Host name resolution services are provided by the underlying operating system; however AE configuration is invariably set up using IP addresses, not hostnames, so that capability is not used.

Time synchronization is provided by the underlying operating system.

2.3.3 IPv4 and IPv6 Support

This product only supports IPv4 connections.

2.4 Configuration

2.4.1 AE Title/Presentation Address Mapping

2.4.1.1 Local AE Titles

All local applications use AE Titles and TCP/IP addresses and ports that are configured in configuration files on the central file server(s). These files are maintained by Service personnel.

Most DICOM Application Entities in a Merge Unity installation may have multiple instances, and so do not have default AE Titles. Typically, a naming convention is followed (<site_id>DRS<station_ID><role><P|U>), but should not be relied on.

Default TCP/IP Ports are shown in **Table 118**.

Table 118 - AE Title Configuration Table

Application Entity	Default AE Title	Default TCP/IP Port
MWL-SCP	No Default	5000
Storage-Service	No Default	104
Q/R-Online-SCP	No Default	5010
Q/R-Online/Archived-SCP	No Default	5015
Guardian-Storage-Service	No Default	104

AE Titles, TCP/IP addresses and ports are all configurable. Please confirm the correct values with Merge service personnel when configuring devices.

2.4.1.2 Remote AE Title/Presentation Address Mapping

The AE Titles, host address, port numbers and allowed roles are configured in a configuration file on the on the central file server(s). This file is maintained by Service personnel.

Remote Storage SCU Application Entities do not need to be configured.

2.4.1.2.2 Remote Modality Worklist SCU

The AE Title of a remote Modality Worklist SCU must be configured in the list of allowed Modality Worklist SCU AEs. This list can be global or specific per MWL-SCP AE instance.

2.4.1.2.3 Remote Storage Commitment SCU

The AE Title, IP address and port number of a remote Storage Commitment SCU must be configured in the list of allowed Storage Commitment SCU AEs. This list can be global or specific per Storage-Service AE instance. This is essential, so that the Storage Commitment SCP AE can send an N-EVENT-REPORT.

Note that the Storage Commitment N-ACTION request must come from a configured AE Title, but there is no check or requirement that the request comes from the corresponding configured IP address. If desired, the remote implementation may have Merge Unity send the N-EVENT-REPORT to a different network entity than the one that sent the N-ACTION request.

2.4.1.2.4 Remote Query/Retrieve SCU

The AE Title of a remote Query/Retrieve SCU must be configured in the list of allowed Query/Retrieve SCU AEs. This list can be global or specific per Query/Retrieve SCP AE instance.

2.4.1.2.5 Remote Storage SCP

The AE Title, IP address and port number of a remote Storage SCP must be configured in the list of known Storage destinations. This list can be global or specific per Storage-SCU AE instance.

In order to process a C-MOVE request from a remote Query/Retrieve SCU, the move destination AE Title must match a known Storage destination.

2.4.1.2.6 Remote Query/Retrieve SCP

The AE Title, IP address and port number of a remote Query/Retrieve SCP must be configured in the list of known Q/R providers. This list can be global or specific per Storage-SCU AE instance.

For a remote DICOM archive, which is both a Query/Retrieve SCP and a Storage SCP, these may be the same or different Application Entities. If they are different, then the fact that they are related needs to be configured in Merge Unity.

2.4.2 Parameters

Table 119 - Configuration Parameters Table

Parameter	Configurable (Yes/No)	Default Value
General Parameters		
Event in workflow at which a SOP Instance is committed	Yes	none
AE Specific Parameters		
Maximum PDU size the AE can receive	Yes	100000
Maximum PDU size the AE can send	Yes	100000
Time-out waiting for an association response (other than for sending Storage Commitment N-EVENT-REPORT)	Yes	10 seconds
Storage SCP Time-out waiting for a request on an association	Yes	1200 seconds
Other SCP Time-out waiting for a request on an association	Yes	10 seconds
SCU Time-out waiting for a response to a request (other than Verification)	Yes	360 seconds (6 minutes)
SCU Time-out waiting for a response to a C-ECHO request	Yes	10 seconds
Storage Commitment SCP maximum time after SOP Instance Storage for Storage Commitment request	Yes	1440 minutes (24 hours)
Maximum time after Storage Commitment request to wait for listed SOP Instances to be committed	Yes	1440 minutes (24 hours)
Retry interval to attempt to send Storage Commitment N-EVENT-REPORT	Yes	300 seconds (5 minutes)
Expiration time after which unsuccessful attempts to send Storage Commitment N-EVENT-REPORT will be abandoned	Yes	1440 minutes (24 hours)
Time-out waiting for an association response for sending Storage Commitment N-EVENT-REPORT	Yes	30 seconds
Number of simultaneous associations for each SCP AE	Yes	none
Time limit waiting for NEARLINE study to be restored in response to a C-MOVE request	Yes	80 seconds
Override Specific Character Set (0008,0005) value in MWL response?	Yes	No
Unconditionally include Type 2C attributes in MWL response?	Yes	No
Allow MPPS to help identify when a study has been received?	Yes	Yes

Parameter	Configurable (Yes/No)	Default Value
General Parameters		
Time to wait for additional procedure step or SOP Instance when receiving a study before considering it complete	Yes	none
Compress images upon receiving?	Yes	store as-is
Compress images upon archiving?	Yes	none
Maximum number of results to return in a Q/R C-FIND	Yes	500
Does DICOM Archive support Storage Commitment SCP?	Yes	No
Time limit for receiving a Storage Commitment N-EVENT-REPORT after sending a successful N-ACTION.	Yes	1 hour
Maximum number of retries for Storage Commitment SCU after an N-EVENT-REPORT timeout.	Yes	1
External DICOM System Parameters		
Description, AE Title, IP address, port, capabilities	Yes	none
Generate interoperability SOP Instances for sending?	Yes	Yes
Send internal files as Raw Data SOP Instances?	Yes	No
Image compression options for sending.	Yes	none

3 Support of Character Sets

Merge Unity AEs support the following character sets:

ISO_IR 6 (default)	Basic G0 Set
ISO_IR 100	Latin Alphabet No. 1
ISO_IR 101	Latin Alphabet No. 2

See **2.2.1.4.3.3 SOP Specific Conformance for SOP Classes** for special character set handling in Modality Worklist responses. Other than this, Merge Unity does not test for specific character sets and does not modify attribute values based on character sets values.

4 Security

Merge Unity depends on the security provisions of the hosting environment.

5 ANNEXES

5.1 IOD Contents

5.1.1 Created SOP Instances

The following tables use a number of abbreviations. The abbreviations used in the "Presence of …" column are:

VNAP	Value Not Always Present (attribute sent zero length if no value is present)
ANAP	Attribute Not Always Present
ALWAYS	Always Present
EMPTY	Attribute is sent without a value

The abbreviations used in the "Source" column:

MWL	the attribute value source Modality Worklist
USER	the attribute value source is from User input
AUTO	the attribute value is generated automatically
MPPS	the attribute value is the same as that use for Modality Performed Procedure Step
CONFIG	the attribute value source is a configurable parameter
STUDY	the attribute value is source is the study to which the SOP instance belongs.

NOTE: All dates and times are encoded in the local configured calendar and time.

5.1.1.1 Interoperability Softcopy Presentation State IOD

Table 120 – Interoperability Grayscale Softcopy Presentation State IOD Modules

IE	Module	Reference	Presence of Module
Patient	Patient	5.1.2	ALWAYS
Study	General Study	5.1.3	ALWAYS
	Patient Study	5.1.4	ALWAYS
Series	General Series	5.1.5	ALWAYS
	Presentation Series	5.1.6	ALWAYS
Equipment	General Equipment	5.1.7	ALWAYS
Presentation State	Presentation State Identification	5.1.2	ALWAYS
	Presentation State Relationship	5.1.10	ALWAYS

IE	Module	Reference	Presence of Module
	Displayed Area	5.1.11	ALWAYS
	Graphic Annotation	5.1.12	Only if Graphic Annotations are present
	Spatial Transformation	5.1.13	Only if Spatial Transformation applied
	Graphic Layer	5.1.14	ALWAYS
	Softcopy VOI LUT	5.1.14	ALWAYS
	Softcopy Presentation LUT	5.1.16	ALWAYS
	SOP Common	5.1.21	ALWAYS
	DR SOP Instance Identification	5.1.22	ALWAYS

5.1.1.2 Documents

Table 121 lists attributes that may be created as part of a Secondary Capture to produce DICOM-compliant images from scanning or adding images from Documents (Bitmaps, etc…).

Table 121 – Document Image Modules

IE	Module	Reference	Usage
Patient	Patient	5.1.2	ALWAYS
Study	General Study	5.1.3	ALWAYS
	Patient Study	5.1.4	ALWAYS
Series	General Series	5.1.5	ALWAYS
Equipment	General Equipment	5.1.7	ALWAYS
	SC Equipment	5.1.8	ALWAYS
Image	General Image	5.1.17	ALWAYS
	Image Pixel	5.1.18	ALWAYS
	SC Image	5.1.18	ALWAYS
	VOI LUT	5.1.20	ALWAYS
	SOP Common	5.1.21	ALWAYS
	DR SOP Instance Identification	5.1.22	ALWAYS

5.1.1.3 Catapult Secondary Capture Images

The Merge Unity Catapult subsystem can generate DICOM Secondary Capture images for a wide variety of legacy, non-DICOM modality devices.

Table 122 - Catapult Secondary Capture Image IOD Modules

IE	Module	Reference	Presence of Module
Combined	Merge Unity Catapult Image Module	Table 123	ALWAYS
Equipment	SC Equipment	5.1.8	ALWAYS
Image	DR SOP Instance Identification	5.1.22	ALWAYS

Table 123 - Merge Unity Catapult Secondary Capture Image Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Type	(0008,0008)	CS	"ORIGINAL\PRIMARY"	ALWAYS	AUTO
SOP Class UID	(0008,0016)	UI	"1.2.840.10008.5.1.4.1.1.7"	ALWAYS	AUTO
SOP Instance UID	(0008,0018)	UI		ALWAYS	AUTO
Study Date	(0008,0020)	DA	Date of start of acquisition	ALWAYS	AUTO
Content Date	(0008,0023)	DA	Image creation date	ALWAYS	AUTO
Study Time	(0008,0030)	TM	Time of start of acquisition	ALWAYS	AUTO
Content Time	(0008,0033)	TM	Image creation time	ALWAYS	AUTO
Manufacturer	(0008,0070)	LO	Manufacturer of acquiring device	ANAP	AUTO
Hospital Name	(0008,0080)	LO	Configured institution name	ANAP	CONFIG
Referring Physician	(0008,0090)	PN		ALWAYS	USER or MWL
Station Name	(0008,1010)	SH	Configured station name	ANAP	CONFIG
Study Description	(0008,1030)	LO		ALWAYS	USER or MWL
Series Description	(0008,103E)	LO		ALWAYS	USER
Admitting Diagnosis Description	(0008,1080)	LO		VNAP	USER or MWL
Manufacturer Model Name	(0008,1090)	LO	Configured model	ANAP	CONFIG
Derivation Description	(0008,2111)	ST	Attribute is present only of image is compressed.	ANAP	AUTO
Patient Name	(0010,0010)	PN		ALWAYS	USER or MWL
Patient ID	(0010,0020)	LO		ALWAYS	USER or MWL
Patient Date of Birth	(0010,0030)	DA		ALWAYS	USER or MWL
Patient Sex	(0010,0040)	CS		ALWAYS	USER or MWL
Patient Age	(0010,1010)	AS		ALWAYS	USER or MWL

Attribute Name	Tag	VR	Value	Presence of Value	Source
Patient Comments	(0010,4000)	LT		VNAP	USER or MWL
Software Versions	(0018,0020)	CS	Configured software version	ANAP	CONFIG
Device Serial Number	(0018,1000)	LO	Configured device serial number	ANAP	CONFIG
Study Instance UID	(0020,000D)	UI		ALWAYS	AUTO or MWL
Series Instance UID	(0020,000E)	UI		ALWAYS	AUTO
Study ID	(0020,0010)	SH	Merge Unity Exam ID	ALWAYS	AUTO
Series Number	(0020,0011)	IS		ALWAYS	AUTO
Acquisition Number	(0020,0012)	IS		ANAP	AUTO
Instance Number	(0020,0013)	IS		ALWAYS	AUTO
Lossy Image Compression	(0028,2110)	CS	Attribute is present only if image is subjected to lossy compression.	ANAP	AUTO

5.1.2 Patient Module

Table 124 - Patient Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Patient Name	(0010,0010)	PN		ALWAYS	STUDY
Patient ID	(0010,0020)	LO		ALWAYS	STUDY
Patient Birth Date	(0010,0030)	DA		ALWAYS	STUDY
Patient's Sex	(0010,0040)	CS		ALWAYS	STUDY
Patient Comments	(0010,4000)	LT		VNAP	STUDY

5.1.3 General Study Module

Table 125 - General Study Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
StudyDate	(0008,0020)	DA		ALWAYS	STUDY
StudyTime	(0008,0030)	TM		ALWAYS	STUDY
Accession Number	(0008,0050)			VNAP	STUDY
Referring Physician	(0008,0090)	PN		VNAP	STUDY

Attribute Name	Tag	VR	Value	Presence of Value	Source
Study Description	(0008,1030)	LO		ANAP	STUDY
Name of Physician(s) Reading Study	(0008,1060)	PN		ANAP	STUDY
Study Instance UI	(0020,000D)	UI		ALWAYS	STUDY
StudyID	(0020,0010)	SH		VNAP	STUDY

5.1.4 Patient Study Module

Table 126 - Patient Study Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Admitting Diagnosis	(0008,1080)	LO		ANAP	STUDY
Patient's Age	(0010,1010)	AS		ANAP	STUDY

5.1.5 General Series Module

Table 127 - General Series Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Series Description	(0008,103E)	LO	Taken from the name of the Merge Unity exam display series that this presentation state describes. If multiple presentation states are needed to describe a display series, all have the same Content Description. (See **2.1.2 Merge Unity** Exams.)	ANAP	AUTO
Series Instance UID	(0020,000E)	UI		ALWAYS	AUTO
SeriesNumber	(0020,0011)	IS		ALWAYS	AUTO

5.1.6 Presentation Series Module

Table 128 - Presentation Series Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Modality	(0008,0060)	CS	"PR"	ALWAYS	AUTO

5.1.7 General Equipment Module

Table 129 - General Equipment Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
InstitutionName	(0008,0080)	LO	Configured facility name	ANAP	CONFIG
Manufacturer	(0008,0070)	LO	"DR Systems, Inc."	ANAP	AUTO
Station Name	(0008,1010)	SH	Computer Name, provided by host operating system	ANAP	AUTO
Software Version	(0018,1020)	LO	Merge Unity software version	ANAP	AUTO

5.1.8 SC Equipment Module

Table 130 - SC Equipment Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Conversion Type	(0008,0064)	CS	"DI" for scanned documents, "DV" for frame grab Catapult images, other values as appropriate for image acquisition	ALWAYS	AUTO
Modality	(0008,0060)	CS	"OT" for scanned documents, configured modality for Catapult images, other values as appropriate for image	ALWAYS	CONFIG or AUTO
Secondary Capture Device ID	(0018,1010)	LO	Value in the format "<Site ID>_<Station Number>"	ALWAYS	AUTO
Secondary Capture Device Manufacturer	(0018,1016)	LO	"DR Systems, Inc."	ALWAYS	AUTO
Secondary Capture Device Manufacturer's Model Name	(0018,1018)	LO	For Catapult images, Image generating device if known, else "Catapult". For scanned documents, "Dominator". Otherwise, configured device model name or "Dominator"	ALWAYS	CONFIG or AUTO
Secondary Capture Device Software Versions	(0018,1019)	LO	Merge Unity software version	ALWAYS	AUTO

5.1.9 Presentation State Identification Module

Table 131 - Presentation State Identification Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Presentation Creation Date	(0070,0082)	DA		ALWAYS	AUTO
Presentation Creation Time	(0070,0083)	TM		ALWAYS	AUTO
Instance Number	(0020,0013)	IS		ALWAYS	AUTO
Content Label	(0070,0080)	CS	Index number relating to the Merge Unity exam display series that this presentation state describes. If multiple presentation states are needed to describe a display series, all have the same Content Label. (See **2.1.2 Merge Unity** Exams.)	ALWAYS	AUTO
Content Description	(0070,0081)	LO	Taken from the name of the **Error! No text of specified style in document.**Merge Unity exam display series that this presentation state describes. If multiple presentation states are needed to describe a display series, all have the same Content Description. (See **2.1.2 Merge Unity** Exams.)	ALWAYS	AUTO
Content Creator's Name	(0070,0084)	PN		EMPTY	AUTO

5.1.10 Presentation State Relationship Module

Table 132 - Presentation State Relationship Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Referenced Series Sequence	(0008,1115)	SQ		VNAP	AUTO
>Referenced Image Sequence	(0008,1140)	SQ		ANAP	AUTO
>>Referenced SOP Class UID	(0008,1150)	UI		ALWAYS	AUTO
>>Referenced SOP Instance UID	(0008,1155)	UI		ALWAYS	AUTO
>>Referenced Frame Number	(0008,1160)	IS		ANAP	AUTO

5.1.11 Displayed Area Module

Table 133 - Displayed Area Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Displayed Area Selection Sequence	(0070,005A)	SQ	Describes mag, roam, crop, rotation, etc. in the stored current view settings for the referenced images.	ALWAYS	AUTO
>Displayed Area Top Left Hand Corner	(0070,0052)	SL		ALWAYS	AUTO
>Displayed Area Bottom Right Hand Corner	(0070,0053)	SL		ALWAYS	AUTO
>Presentation Size Mode	(0070,0100)	CS		ALWAYS	AUTO
>Presentation Pixel Spacing	(0070,0101)	DS		ANAP	AUTO
>Presentation Pixel Aspect Ratio	(0070,0102)	IS		ANAP	AUTO
>Presentation Pixel Magnification Ratio	(0070,0103)	FL		ANAP	AUTO
>Referenced Image Sequence	(0008,1140)	SQ		ANAP	AUTO
>>Referenced SOP Class UID	(0008,1150)	UI		ALWAYS	AUTO
>>Referenced SOP Instance UID	(0008,1155)	UI		ALWAYS	AUTO
>>Referenced Frame Number	(0008,1160)	IS		ANAP	AUTO

5.1.12 Graphic Annotation Module

Table 134- Graphic Annotation Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Graphic Annotation Sequence	(0070,0001)	SQ	Describes annotations in the stored current view settings for the referenced images.	ANAP	AUTO
>Referenced Image Sequence	(0008,1140)	SQ		ANAP	AUTO
>>Referenced SOP Class UID	(0008,1150)	UI		ALWAYS	AUTO
>>Referenced SOP Instance UID	(0008,1155)	UI		ALWAYS	AUTO

Attribute Name	Tag	VR	Value	Presence of Value	Source
>>Referenced Frame Number	(0008,1160)	IS		ANAP	AUTO
>Graphic Layer	(0070,0002)	CS	"$DR LAYER"	ALWAYS	AUTO
>Text Object Sequence	(0070,0008)	SQ		ANAP	AUTO
>>Unformatted Text Value	(0070,0006)	ST		ALWAYS	AUTO
>>Bounding Box Annotation Units	(0070,0003)	CS	Present if annotation has a bounding box. Value: PIXEL	ANAP	AUTO
>>Anchor Point Annotation Units	(0070,0004)	CS	Present if annotation has an anchor point. Value: PIXEL	ANAP	AUTO
>>Bounding Box Top Left Hand Corner	(0070,0010)	FL	Present if annotation has a bounding box.	ANAP	AUTO
>>Bounding Box Bottom Right Hand Corner	(0070,0011)	FL	Present if annotation has a bounding box.	ANAP	AUTO
>>Bounding Box Text Horizontal Justification	(0070,0012)	CS	Present if annotation has a bounding box.	ANAP	AUTO
>>Anchor Point	(0070,0014)	FL	Present if annotation has an anchor point.	ANAP	AUTO
>>Anchor Point Visibility	(0070,0015)	CS	Present if annotation has an anchor point.	ANAP	AUTO
>Graphic Object Sequence	(0070,0009)	SQ		ANAP	AUTO
>>Graphic Annotation Units	(0070,0005)	CS	"PIXEL"	ALWAYS	AUTO
>>Graphic Dimensions	(0070,0020)	US	2	ALWAYS	AUTO
>>Number of Graphic Points	(0070,0021)	US		ALWAYS	AUTO
>>Graphic Data	(0070,0022)	FL		ALWAYS	AUTO
>>Graphic Type	(0070,0023)	CS	The shape of graphic that is to be drawn. Enumerated Values: POINT POLYLINE INTERPOLATED CIRCLE ELLIPSE	ALWAYS	AUTO
>>Graphic Filled	(0070,0024)	CS	Present if Graphic Type (0070,0023) is POLYLINE, CIRCLE, or ELLIPSE. Values: Y, N	ANAP	AUTO

5.1.13 Spatial Transformation Module

Table 135 - Spatial Transformation Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Horizontal Flip	(0070,0041)	CS	Present if image is flipped in the stored current view settings for the referenced images.	ANAP	AUTO
Image Rotation	(0070,0042)	US	Present if image is rotated in the stored current view settings for the referenced images.	ANAP	AUTO

5.1.14 Graphic Layer Module

Table 136 - Graphic Layer Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Graphic Layer Sequence	(0070,0060)	SQ		ANAP	AUTO
>Graphic Layer	(0070,0002)	CS	"$DR LAYER"	ALWAYS	AUTO
>Graphic Layer Order	(0070,0062)	IS	1	ALWAYS	AUTO
>Graphic Layer Recommended Display Grayscale Value	(0070,0066)	US	FFFFH	ANAP	AUTO
Graphic Layer Recommended Display RGB Value	(0070,0067)	US	(FFFFH, FFFFH, FFFFH)	ANAP	AUTO

5.1.15 Softcopy VOI LUT Module

Table 137 - Softcopy VOI LUT Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Softcopy VOI LUT Sequence	(0028,3110)	SQ		ANAP	AUTO
>WindowCenter	(0028,1050)	DS	Present if image is assigned a window center and window width in the stored current view settings for the referenced images.	ANAP	AUTO
>WindowWidth	(0028,1051)	DS	Present if image is assigned a window center and window width in the stored current view settings for the referenced images.	ANAP	AUTO
>VOI LUT Function	(0028,1056)	CS	Present if image is assigned a non-linear window center and window width transformation in the	ANAP	AUTO

Attribute Name	Tag	VR	Value	Presence of Value	Source
			stored current view settings for the referenced images.		
>Referenced Image Sequence	(0008,1140)	SQ		ALWAYS	AUTO
>>Referenced SOP Class UID	(0008,1150)	UI		ALWAYS	AUTO
>>Referenced SOP Instance UID	(0008,1155)	UI		ALWAYS	AUTO
>>Referenced Frame Number	(0008,1160)	IS		ANAP	AUTO

5.1.16 Softcopy Presentation LUT Module

Table 138 - Softcopy Presentation LUT Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Presentation LUT Shape	(2050,0020)		"IDENTITY"	ALWAYS	AUTO

5.1.17 General Image Module

Table 139 - General Image Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Instance Number	(0020,0013)	IS		ALWAYS	AUTO
Patient Orientation	(0020,0020)	CS		EMPTY	AUTO
Content Date	(0008,0023)	DA		ALWAYS	AUTO
Content Time	(0008,0023)	TM		ALWAYS	AUTO
Image Type	(0008,0008)	CS	"ORIGINAL\PRIMARY" for Catapult image, "DERIVED\SECONDARY" for scanned document	ALWAYS	AUTO
Acquisition Number	(0020,0012)	IS		ANAP	AUTO
Derivation Description	(0008,2111)	ST	Attribute is present if image is compressed.	ANAP	AUTO
Lossy Image Compression	(0028,2110)	CS	"01" if image has been subjected to lossy image compression	ANAP	AUTO
Lossy Image Compression Ratio	(0028,2112)	DS	Attribute is present if has been subjected to lossy image compression	ANAP	AUTO

5.1.18 Image Pixel Module

Table 140 - Image Pixel Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Samples per Pixel	(0028,0002)	US		ALWAYS	AUTO
Photometric Interpretation	(0028,0004)	CS		ALWAYS	AUTO
Rows	(0028,0010)	US		ALWAYS	AUTO
Columns	(0028,0011)	US		ALWAYS	AUTO
Bits Allocated	(0028,0100)	US		ALWAYS	AUTO
Bits Stored	(0028,0101)	US		ALWAYS	AUTO
High Bit	(0028,0102)	US		ALWAYS	AUTO
Pixel Representation	(0028,0103)	US		ALWAYS	AUTO
Pixel Data	(7FE0,0010)	OB		ALWAYS	AUTO
Planar Configuration	(0028,0006)	US		ALWAYS	AUTO

5.1.19 SC Image Module

Table 141 - SC Image Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Date of Secondary Capture	(0018,1012)	DA		ALWAYS	AUTO
Time of Secondary Capture	(0018,1014)	TM		ALWAYS	AUTO

5.1.20 VOI LUT Module

Table 142 - VOI LUT Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Window Center	(0028,1050)	DS		ALWAYS	AUTO
Window Width	(0028,1051)	DS		ALWAYS	AUTO
Window Center & Width Explanation	(0028,1055)	LO		ALWAYS	AUTO

5.1.21 SOP Common Module

Table 143 - SOP Common Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
SOP Class UID	(0008,0016)	UI		ALWAYS	AUTO
SOP Instance UID	(0008,0018)	UI		ALWAYS	AUTO
Instance Creation Date	(0008,0012)	DT		ALWAYS	AUTO
Instance Creation Time	(0008,0013)	TM		ALWAYS	AUTO

5.1.22 DR SOP Instance Identification Module

Table 144 - DR SOP Instance Identification Module Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Private Creator	(4453,0010)	LO	"DR Systems, Inc."	ALWAYS	AUTO
DR Exam ID	(4453,1001)	LO	Unique identifier for this exam. (See **2.1.2 Merge Unity** Exams).	ALWAYS	AUTO
DR Image Type - Retired	(4453,1002)	LO	If this is an image SOP Instance, then Unity Image Type describes the role this image plays in the exam. Defined values: CONFIDENTIAL IMAGE MEDICAL OPEN If this is not an image, then Unity Image Type will be empty.	VNAP	AUTO
DR File Type	(4453,1004)	LO	DR File Type identifies the role of this SOP Instance in the exam. Defined values: AUDIO NOTES GENERAL FILE GSPS MONTAGE MONTAGE DOC NOTES PATFILE REPORT SERIES IMAGE TEXT NOTES VOICE CLIP	ALWAYS	AUTO

Attribute Name	Tag	VR	Value	Presence of Value	Source
			WAV		
DR File Suffix	(4453,1005)	LO	A distinguishing identifier for this SOP Instance in the exam; used as a component of the file name. DR File Suffix will not exceed 8 characters.	ALWAYS	AUTO

5.1.23 Usage of Attributes from received IOD's

Patient ID (0010,0020) may not be empty.

Study Date (0008,0020) may not be empty.

5.1.24 Attribute Mapping

Not applicable.

5.1.25 Coerced/Modified fields

5.1.25.1 Outbound Attribute Update

The following is a list of tags that Unity currently corrects during DICOM send:

This AE can coerce values upon send. Only the transmitted SOP Instance is affected, the instance stored in the Merge Unity is not affected.

Transfer Syntax

Images may be transmitted as compressed, not compressed, or as-is (neither forcing compression nor decompression.) The type and degree of compression is selected from a configurable, modality-specific list, thus allowing site policy to control whether, what type and how much compression is acceptable for each modality.

The compression request is subject to the Presentation Contexts accepted during Association negotiation. The Storage-SCU AE will ignore a request to compress an image if the Storage SCP does not accept the implied Presentation Context.

If an image is already compressed, the Storage-SCU AE will ignore a request to compress it in the same transfer syntax at a lower level of compression.

Furthermore, if the image is already a compressed image or is VR Explicit and the Storage SCP does not accept the image's Transfer Syntax, then the Storage-SCU AE will send the image in Implicit VR Little Endian Uncompressed format. (The instance of the image stored in the PACS is unaffected.)

These changes can result in the coercion of a number of attributes. Attributes that may be coerced due to compression or decompression are listed in **Table 145**. Additional attributes that may be coerced during lossy compression are listed in **Table 146**. Note that in the case of Lossy Compression the tags are coerced at the time of compression and not just when a study is transmitted.

Table 145 - Attributes coerced during compression or decompression

Attribute Name	Tag	Comment
Image Type	(0008,0008)	If an image is compressed, then the Value 1 is coerced to DERIVED.
Derivation Description	(0008,2111)	If an image is compressed, Derivation Description is coerced to include compression history information. The existing contents (if any) will be prefixed with a line that begins "DRS:", and, if the attribute was not previously empty, ends with a new line character.
Source Image Sequence	(0008,2112)	Describes the image that was the source for this compressed image.
Samples per Pixel	(0028,0002)	If an image is compressed where the Photometric Interpretation (0028,0004) is PALETTE COLOR, Samples per Pixel is coerced from 1 to 3.
Photometric Interpretation	(0028,0004)	If a color image is compressed, then the Photometric Interpretation is coerced as follows: JPEG → YBR_FULL_422 JPEG 2000 lossy → YBR_ICT JPEG 2000 lossless → YBR_RCT JPEG Lossless → RGB
Planar Configuration	(0028,0006)	If a color image is compressed, Planar Configuration is coerced to 0 (color-by-pixel).
Bits Allocated	(0028,0100)	If an image is compressed, Bits Allocated is coerced to reflect the compression technique.
Bits Stored	(0028,0101)	If an image is compressed, Bits Stored is coerced to reflect the compression technique.
High Bit	(0028,0102)	If an image is compressed, High Bit is coerced to reflect the compression technique.
Pixel Representation	(0028,0103)	If an image is compressed using JPEG, Pixel Representation is coerced to 0 (unsigned).
Rescale Intercept	(0028,1052)	If an image is compressed with JPEG, it is necessary to scale the pixel domain to match that expected by the compression technique. In this case, Rescale Intercept and Rescale Slope are coerced to preserve the logical range of the output of the Modality LUT Module step in the DICOM pixel processing pathway. Hence, the parameters of the VOI LUT Module do not need to be adjusted as a result of compression.
Rescale Slope	(0028,1053)	See Rescale Intercept, above.
Smallest Pixel Value in Series	(0028,0108)	If an image is compressed, Smallest Pixel Value in Series is coerced to the correct value if it can be computed, or dropped if it cannot.
Largest Pixel Value in Series	(0028,0109)	If an image is compressed, Largest Pixel Value in Series is coerced to the correct value if it can be computed, or dropped if it cannot.

Attribute Name	Tag	Comment
Red Palette Color Lookup Table Descriptor	(0028,1101)	If an image is compressed where the Photometric Interpretation (0028,0004) is PALETTE COLOR, this tag is dropped.
Green Palette Color Lookup Table Descriptor	(0028,1102)	If an image is compressed where the Photometric Interpretation (0028,0004) is PALETTE COLOR, this tag is dropped.
Blue Palette Color Lookup Table Descriptor	(0028,1103)	If an image is compressed where the Photometric Interpretation (0028,0004) is PALETTE COLOR, this tag is dropped.
Red Palette Color Lookup Table Data	(0028,1201)	If an image is compressed where the Photometric Interpretation (0028,0004) is PALETTE COLOR, this tag is dropped.
Green Palette Color Lookup Table Data	(0028,1202)	If an image is compressed where the Photometric Interpretation (0028,0004) is PALETTE COLOR, this tag is dropped.
Blue Palette Color Lookup Table Data	(0028,1203)	If an image is compressed where the Photometric Interpretation (0028,0004) is PALETTE COLOR, this tag is dropped.
Modality LUT Sequence	(0028,3000)	If an image with a Modality LUT Sequence is compressed, the LUT is applied to the pixel data prior to compression, and the Modality LUT Sequence is removed from the compressed image.
Icon Image Sequence	(0088,0200)	Merge Unity does not decompress or recompress Pixel Data within an Image Icon Sequence. If an image contains an Icon Image Sequence in which the Pixel Data is compressed (encapsulated), and the image compression type is changing, the Icon Image Sequence is dropped.

The following table represents a list of tags that are coerced when a lossy compression algorithm is applied to the images upon transfer. For lossy compression, these tags are coerced in addition the tags in the previous table.

In this table, data contained within double quotes in the Comment section refer the actual value that is coerced for the corresponding tag attribute.

For each sequence, the sequence is created if none existed previously. If there was an existing sequence then a new item is appended to the end of the existing items.

Table 146 - Additional attributes coerced during lossy compression

Attribute Name	Tag	Comment
SOP Instance UID	(0008,0018)	If the image undergoes lossy compression, a SOP Instance UID is generated and coerced
Source Image Sequence	(0008,2112)	For lossy compression, describes the image that was the source for this compressed image.
>Referenced SOP Class UID	(0008,1150)	SOP Class UID of the source image
>Referenced SOP Instance UID	(0008,1155)	SOP Instance UID of the source image
>Purpose of Reference Code Sequence	(0040,A170)	
>>Code Value	(0008,0100)	“121320”

Attribute Name	Tag	Comment
>>Coding Scheme Designator	(0008,0102)	“DCM”
>>Code Meaning	(0008,0104)	“Uncompressed predecessor”
>>Context Identifier	(0008,010F)	"7202"
>>Mapping Resource	(0008,0105)	"DCMR"
>>Context Group Version	(0008,0106)	"20020904"
>>Context Group Extension Flag	(0008,010B)	"N"
Derivation Code Sequence	(0008,9215)	For lossy compression only, describes how this image was derived.
>Code Value	(0008,0100)	"113040"
>Coding Scheme Designator	(0008,0102)	"DCM"
>Code Meaning	(0008,0104)	"Lossy Compression"
>Context Identifier	(0008,010F)	"7203"
>Mapping Resource	(0008,0105)	"DCMR"
>Context Group Version	(0008,0106)	"20020904"
>Context Group Extension Flag	(0008,010B)	"N"
Pixel Padding	(0028,0120)	If an image is compressed with lossy compression, this tag is dropped if present
Lossy Image Compression	(0028,2110)	If an image is compressed with lossy compression, this tag is added or coerced to 01 (Image has been subjected to lossy compression)
Lossy Image Compression Ratio	(0028,2112)	If an image is compressed with lossy compression, this tag is added if needed. If the tag exists, the lossy compression ratio is appended to the end. May be multi-valued.
Lossy Image Compression Method	(0028,2114)	Applies only when lossy compression is applied. A list of lossy compressions applied. May be multivalued, where new lossy compressions are appended ISO_10918_1 = JPEG Lossy Compression ISO_15444_1 = JPEG 2000 Irreversible Compression

Display Parameters

The Merge Unity allows users to override the VOI LUT Module parameters stored in an image, and to view an image in one or more user-specified VOI LUT Module settings. Properly authorized users can store these settings, so that when the images are printed or displayed in the future, they initially appear with the user-specified VOI LUT Module parameters.

If any overridden VOI LUT Module parameters are in the form of Window Center (0028,1050) and Window Width (0028,1051) values, then the Storage-SCU AE will coerce Window Center (0028,1050), Window Width (0028,1051) and Window Center & Width Explanation (0028,1055) to contain the user-specified values. The VM of these attributes reflects the number of such user settings. By the nature of the Merge Unity PACS, there will be an

Explanation for each Window Center/Width combination, and logically related Window Center/Width values among various images will have identical Explanations.

The list of coerced window/level tags is found in **Table 150**.

UID Data

When the Study Instance UID does not correspond to Merge Unity's exam organization (see **2.1.2 Merge Unity** Exams), SOP Instances exported by DRS are updated with new Instance UIDs. This ensures strict DICOM compliance and provides for greater study usability by other DICOM systems. Refer to **Table 147** for the full list of potentially coerced DICOM tags. Referenced SOP Instance UIDs are updated to the correct values based on the coerced UIDs.

Also, a history of the UIDs coerced for this purpose is stored in the Private Attribute DR Original Instance UID Sequence (4453,100C).

Demographic Data

The transmitted study is updated with the most current patient demographic data. This is done as a safety issue, so that corrections to patient identification are propagated to the Storage SCP. Refer to **Table 148** for the specific tags that may be coerced.

Study Data

Information about the study is coerced to match the information stored on the PACS for the study. This information is usually more detailed than that originally provided by the modality, and may reflect corrections made to the study information after the SOP Instances were originally acquired, or information not available at that time. **Table 149** contains the complete list of potentially coerced study-related DICOM tags.

Equipment/Institute Data

Any updates to Equipment or Institute related information will be reflected by coercing the appropriate DICOM Tags. For example, an image acquired as a Secondary Capture will require some or all of these tags to be coerced.

For a complete list of Equipment/Institute related tags, see **Table 151**.

Series Level Data

Occasionally, series level tags will need to be coerced. For example, if the Series Instance UIDs were coerced or if the images in a series were acquired as Secondary Capture, then some or all of the series level tags will be coerced.

For a complete list of Series Level related tags, see **Table 152**.

Image Information Related Tags

Studies exported by a DRS PACS may require image information tags to be coerced. These tags are in addition the tags listed in the preceding table.

For a complete list of Image-related tags, see **Table 154**.

Private Tags

All studies exported by a DRS PACS will have Private Tags coerced. This allows DRS to provide and maintain vital Study information (including UID history tracking), while still be fully DICOM compliant.

For a complete list of Private Tags, see **Table 156**.

Tables of Attributes That May Be Coerced

The following tables present a list of DICOM Tags that may be coerced as part of the normal operation of a Merge Unity PACS. During any normal DICOM Network operation, any or all these tags may be coerced.

Table 147 - UID Related Tags

Tag	Name
(0002,0003)	File SOP Instance UID
(0008,0018)	SOP Instance UID
(0020,000D)	Study Instance UID
(0020,000E)	Series Instance UID
(0008,1155)	Referenced SOP Instance UID

Table 148 - Patient Related Tags

Tag	Name
(0010,0010)	Patient Name
(0010,0020)	Patient ID
(0010,0030)	Patient Birth Date
(0010,0040)	Patient's Sex
(0010,4000)	Patient Comments
(0008,1080)	Admitting Diagnosis
(0010,1010)	Patient's Age

Table 149 - Study Level Related Tags

Tag	Name
(0008,0020)	Study Date
(0008,0030)	Study Time
(0008,0050)	Accession Number
(0008,0090)	Referring Physician
(0008,1030)	Study Description
(0008,1060)	Reading Radiologist
(0020,0010)	Study ID

Table 150 - Windows Level Related Tags

Tag	Name
(0028,1050)	Window Center
(0028,1051)	Window Width
(0028,1055)	Window Explanation

Table 151 - Equipment/Institution Level Related Tags

Tag	Name
(0008,0070)	Manufacturer
(0008,0080)	Institution Name
(0008,0081)	Institution Address
(0008,1000)	Device Serial Number
(0008,1010)	Station Name
(0008,1020)	Software Version
(0008,1040)	Institutional Department Name
(0008,1050)	Spatial Resolution
(0008,1090)	Manufacturer Model Name
(0008,1200)	Date of Last Calibration
(0008,1201)	Time of Last Calibration
(0028,0120)	Pixel Padding

Table 152 - Series Level Related Tags

Tag	Name
(0008,0021)	Series Date
(0008,0031)	Series Time
(0008,0060)	Modality
(0008,103E)	Series Description
(0020,0011)	Series Number
(0028,0108)	Smallest Pixel Value in Series
(0028,0109)	Largest Pixel Value in Series

Table 153 - Secondary Capture Related Tags

Tag	Name
(0008,0060)	Modality Override Series Value
(0008,0064)	Conversion Type
(0018,0022)	Scan Options
(0018,0023)	MR Acquisition Type
(0018,1010)	Secondary Capture Device ID
(0018,1012)	Date of Secondary Capture
(0018,1014)	Time of Secondary Capture
(0018,1016)	Secondary Capture Device Manufacturer
(0018,1018)	Secondary Capture Device Manufacturer Model Name
(0018,1019)	Secondary Capture Software Version

Table 154 - Image Related Tags

Tag	Name
(0008,0008)	Image Type
(0008,0023)	Image Date
(0008,0033)	Image Time
(0008,2111)	Derivation Description
(0008,2112)	Source Image Sequence
(0008,9215)	Derivation Code Sequence
(0020,0013)	Image / Instance Number
(0020,0020)	Patient Orientation
(0028,0002)	Samples per Pixel

Tag	Name
(0028,0004)	Photometric Interpretation
(0028,0006)	Planar Configuration
(0028,0100)	Bits Allocated
(0028,0101)	Bits Stored
(0028,0102)	High Bit
(0028,0103)	Pixel Representation
(0028,0106)	Smallest Pixel Value
(0028,0107)	Largest Pixel Value
(0028,0110)	Smallest Pixel Value in Plane
(0028,0111)	Largest Pixel Value in Plane
(0028,1101)	Red Palette Color Lookup Table Descriptor
(0028,1102)	Green Palette Color Lookup Table Descriptor
(0028,1103)	Blue Palette Color Lookup Table Descriptor
(0028,1201)	Red Palette Color Lookup Table Data
(0028,1202)	Green Palette Color Lookup Table Data
(0028,1203)	Blue Palette Color Lookup Table Data
(0028,2110)	Lossy Image Compression
(0028,2112)	Lossy Image Compression Ratio
(0028,2114)	Lossy Image Compression Method
(0028,3000)	Modality LUT Sequence

5.1.25.2 De-identification

Merge Unity supports creation of a new, de-identified version of a study. The de-identified study is a separate study, the original remains unchanged.

Table 155 - Attributes Coerced by De-identification

Attribute Name	Tag	Comment
SOP Instance UID	(0008,0018)	New value generated
Study Date	(0008,0020)	Shifted by a random number of days.
Series Date	(0008,0021)	Attribute dropped
Acquisition Date	(0008,0022)	Attribute dropped
Content Date	(0008,0023)	Value: "12/31/2006"
Study Time	(0008,0030)	Value: "00:00"
Series Time	(0008,0031)	Attribute dropped
Acquisition Time	(0008,0032)	Attribute dropped

Attribute Name	Tag	Comment
Content Time	(0008,0033)	Value: "00:00"
Accession Number	(0008,0050)	Attribute dropped
Institution Name	(0008,0080)	Changed to automatically generated or user set value.
Institution Address	(0008,0081)	Attribute dropped
Referring Physician	(0008,0090)	Changed to automatically generated or user set value.
Referring Physician's Address	(0008,0092)	Attribute dropped
Referring Physician's Telephone Numbers	(0008,0094)	Attribute dropped
Referring Physician identification sequence	(0008,0096)	Attribute dropped
Private Coding Scheme Creator UID	(0008,010C)	Attribute dropped
Code Set Extension Creator UID	(0008,010D)	Attribute dropped
Responsible Organization	(0008,0116)	Attribute dropped
Network ID (RET)	(0008,1000)	Attribute dropped
Physician(s) of Record	(0008,1048)	Attribute dropped
Physician(s) of Record identification Sequence	(0008,1049)	Attribute dropped
Performing Physician's Name	(0008,1050)	Attribute dropped
Performing Physician identification Sequence	(0008,1052)	Attribute dropped
Reading Radiologist (as a PN)	(0008,1060)	Changed to automatically generated or user set value.
Physician(s) Reading Study Identification Sequence	(0008,1062)	Attribute dropped
Operators' Name	(0008,1070)	Attribute dropped
Operator Identification Sequence	(0008,1072)	Attribute dropped
Related Series Sequence	(0008,1250)	Attribute dropped
Derivation Description	(0008,2111)	Attribute dropped
Patient Name	(0010,0010)	Changed to automatically generated or user set value.
Patient ID	(0010,0020)	Changed to automatically generated or user set value.
Issuer of Patient ID	(0010,0021)	Attribute dropped
Patient Birth Date	(0010,0030)	Shifted in synchronization with Study Date to preserve patient's age at time of study
Patient's Birth Time	(0010,0032)	Attribute dropped
Patient's Insurance Plan Code Sequence	(0010,0050)	Attribute dropped
Other Patient ID	(0010,1000)	Attribute dropped
Other Patient Names	(0010,1001)	Attribute dropped
Patient's Birth Name	(0010,1005)	Attribute dropped
Patient's Age	(0010,1010)	If greater than 90, coerced to 90.
Patient's Age	(0010,1010)	Attribute dropped
Patient's Size	(0010,1020)	Attribute dropped
Patient's Weight	(0010,1030)	Attribute dropped

Attribute Name	Tag	Comment
Patient's Address	(0010,1040)	Changed to automatically generated or user set value.
Patient's Address	(0010,1040)	Attribute dropped
Insurance Plan Identifier	(0010,1050)	Attribute dropped
Patient's Mother's Birth Name	(0010,1060)	Attribute dropped
Military Rank	(0010,1080)	Attribute dropped
Branch of Service	(0010,1081)	Attribute dropped
Medical Record Locator	(0010,1090)	Attribute dropped
Medical Alerts	(0010,2000)	Attribute dropped
Contrast Allergies	(0010,2110)	Attribute dropped
Country of Residence	(0010,2150)	Attribute dropped
Region of Residence	(0010,2152)	Attribute dropped
Patient's Telephone Numbers	(0010,2154)	Attribute dropped
Ethnic Group	(0010,2160)	Attribute dropped
Additional Patient History	(0010,21B0)	Attribute dropped
Pregnancy Status	(0010,21C0)	Attribute dropped
Last Menstrual Date	(0010,21D0)	Attribute dropped
Patient's Religious Preference	(0010,21F0)	Attribute dropped
Patient Comments	(0010,4000)	Attribute dropped
Clinical Trial Sponsor Name	(0012,0010)	Attribute dropped
Clinical Trial Protocol ID	(0012,0020)	Attribute dropped
Clinical Trial Protocol Name	(0012,0021)	Attribute dropped
Clinical Trial Site ID	(0012,0030)	Attribute dropped
Clinical Trial Site Name	(0012,0031)	Attribute dropped
Clinical Trial Subject ID	(0012,0040)	Attribute dropped
Clinical Trial Subject Reading ID	(0012,0042)	Attribute dropped
Clinical Trial Time Point ID	(0012,0050)	Attribute dropped
Clinical Trial Time Point Description	(0012,0051)	Attribute dropped
Clinical Trial coordinating Center Name	(0012,0060)	Attribute dropped
De-Identification	(0012,0062)	Value: "YES"
De-Identification Method	(0012,0063)	Value: "SAFE HARBOR METHOD"
Device Serial Number	(0018,1000)	Attribute dropped
Study Instance UID	(0020,000D)	New value generated
Series Instance UID	(0020,000E)	New value generated
Image Comments	(0020,4000)	Attribute dropped
Frame Comments	(0020,9158)	Attribute dropped
Requesting Physician Phone	(0032,1032)	Attribute dropped
Study Comments	(0032,4000)	Attribute dropped

Attribute Name	Tag	Comment
Referenced Patient Alias Sequence	(0038,0004)	Attribute dropped
Admission ID	(0038,0010)	Attribute dropped
Issuer of Admission ID	(0038,0011)	Attribute dropped
Current Patient Location	(0038,0300)	Attribute dropped
Patient's Institution Residence	(0038,0400)	Attribute dropped
Patient State	(0038,0500)	Attribute dropped
Visit Comments	(0038,4000)	Attribute dropped
Comments on the Performed Procedure Steps	(0040,0280)	Attribute dropped
Placer Order Number / Procedure (RET)	(0040,1006)	Attribute dropped
Filler Order Number / Procedure (RET)	(0040,1007)	Attribute dropped
Names of Intended Recipients of Results	(0040,1010)	Attribute dropped
Intended Recipients of Results Identification Sequence	(0040,1011)	Attribute dropped
Person Identification Code Sequence	(0040,1101)	Attribute dropped
Person's Address	(0040,1102)	Attribute dropped
Person's Telephone Numbers	(0040,1103)	Attribute dropped
Requested Procedure Comments	(0040,1400)	Attribute dropped
Placer Order Number / Imaging Service Request	(0040,2006)	Attribute dropped
Filler Order Number / Imaging Service Request	(0040,2007)	Attribute dropped
Placer Order Number / Imaging Service Request	(0040,2016)	Attribute dropped
Filler Order Number / Imaging Service Request	(0040,2017)	Attribute dropped
Imaging Service Request Comments	(0040,2400)	Attribute dropped
Human Performer's Organization	(0040,4036)	Attribute dropped
Human Performer's Name	(0040,4037)	Attribute dropped
Person Name	(0040,A123)	Attribute dropped
All Private Attributes		Attribute dropped
All intra-study SOP Instance UID references		Changed to the new, generated SOP Instance UID
All intra-study Series Instance UID references		Changed to the new, generated Series Instance UID
All intra-study Study Instance UID references		Changed to the new, generated Study Instance UID

5.2 Data Dictionary of private attributes

Currently, Merge Unity private attributes are stored in Group 4453. However, this may change in the future, and anyone interested in these attributes is strongly encouraged to locate them via the Private Creator value shown in **Table 156** and **Table 157**.

The private attributes shown in **Table 156** appear in the main dataset. Except where noted, they are added to all SOP Instances.

Table 156 – Private Attributes in the Main Dataset

Tag	Attribute Name	VR	VM	Attribute Description
(4453,0010)	Private Creator	LO	1	Value identifying DR Systems, Inc. as creator of these Private Attributes. Value: `DR Systems, Inc.`
(4453,1001)	DR Exam ID	LO	1	Internal unique identifier for this exam. DR Exam ID has an injective mapping to Study Instance UID; different values of DR Exam ID will have different values of Study Instance UID.

(4453,1002)	DR Image Type - Retired	LO	1	If this is an image SOP Instance, then Unity Image Type describes the role this image plays in the exam.
				Values: `CONFIDENTIAL`
				`IMAGE`
				`MEDICAL`
				`OPEN`
				If this is not an image, then DR Image Type will be empty.

(4453,1004)	DR File Type	LO	1	DR File Type identifies the role of this SOP Instance in the exam.
				Values: `AUDIO NOTES`
				`GENERAL FILE`
				`GSPS`
				`MONTAGE`
				`MONTAGE DOC`
				`NOTES`
				`PATFILE`
				`REPORT`
				`SERIES IMAGE`
				`TEXT NOTES`
				`VOICE CLIP`
				`WAV`

(4453,1005)	DR File Suffix	LO	1	A distinguishing identifier for this SOP Instance in the exam, used as a component of the file name. DR File Suffix will not exceed 8 characters.
(4453,100c)	DR Original Instance UID Sequence	SQ	1	History of prior Instance UIDs for this SOP Instance. See **5.2.1 DR Original Instance UID Sequence** There will be one item in this sequence for each time that the SOP Instance has been moved by Merge Unity into a different study.

Tag	Attribute Name	VR	VM	Attribute Description
>(0020,000D)	Study Instance UID	UI	1	Previous value of the Study Instance UID
>(0008,1115)	Referenced Series Sequence	SQ	1	This series will have one item.
>> (0020,000E)	Series Instance UID	UI	1	Previous value of the Series Instance UID
>> (0008,1199)	Referenced SOP Sequence	SQ	1	This series will have one item.
>>>(0008,1150)	Referenced SOP Class UID	UI	1	Identifies the SOP Class of the referenced SOP Instance.
>>> (0008,1155)	Referenced SOP Instance UID	UI	1	Previous value of the SOP Instance UID.
(4453,1020)	DR Raw Byte Length	IS	1	The length, in bytes, of the raw data stored in DR Raw Bytes. This attribute appears in **Error! No text of specified style in document.** Merge Unity generated Raw Data SOP Instances. See **5.2.2 Data enclosed in Raw Data SOP Instances**.
(4453,1021)	DR Raw Bytes	OB	1	Enclosed data content of a Raw Data SOP Instance. The actual length of the data is specified in DR Raw Byte Length. This attribute appears in **Error! No text of specified style in document.** Merge Unity generated Raw Data SOP Instances. See **5.2.2 Data enclosed in Raw Data SOP Instances**.

The private attributes shown in **Table 157** appear in items of the Graphic Annotation Sequence of Presentation State SOP Instances generated by**Error! No text of specified style in document.** Merge Unity.

Table 157 - Private Attributes in the Graphic Annotation Sequence (0070,0001)

Tag	Attribute Name	VR	VM	Attribute Description
(0070,0001)	Graphic Annotation Sequence	SQ	1	
>(4453,0010)	Private Creator	LO	1	Value identifying DR Systems, Inc. as creator of these Private Attributes. Value: `DR Systems, Inc.`
>(4453,100a)	DR Annotation Type	LO	1	Provides additional **Error! No text of specified style in document.** Merge

Tag	Attribute Name	VR	VM	Attribute Description
				Unity specific information about the annotation described by this item. Values: ANGLE ARROW CARDIO2D CARDIODIM CARDIOMMODE CARDIOPHT CARDIOPISA CARDIOTIME CARDIOVDIAM CARDIOVMAX CARDIOVTI COBB CROP LABEL MEASURE MEASUREPOLYLINE ROI_CIRCLE ROI_POINT ROI_POLY ROI_RECT STENOSIS TRANSFORM_REF

5.2.1 DR Original Instance UID Sequence

Error! No text of specified style in document. Merge Unity allows DICOM studies to be split and merged, in order to deal with clinical realities. As a result, Unity may coerce the Study Instance UID, Series Instance UID, and SOP Instance UID of a DICOM SOP Instance. (See **2.1.2 Merge Unity** Exams for a more detailed description.)

DR Original Instance UID Sequence stores the history of the SOP Instance's prior Study, Series, and SOP Instance UIDs that were changed as a result of the SOP Instance becoming a member of a different study. Items are in historical order, with the oldest values first. Each time a Study Instance UID of an SOP Instance is changed, an item is appended holding the prior values.

The DR Original Instance UID Sequence does not record changes when the Study Instance UID does not change, for example, as a result of lossy Compression. That history is tracked in the Source Image Sequence, instead.

Referenced SOP Class UID is included in the DR Original Instance UID Sequence only so that it is follows the typical pattern of other SOP Instance references. The SOP Class UID is not changed when a SOP Instance moves from one study to another.

5.2.2 Data enclosed in Raw Data SOP Instances

Merge Unity can enclose non-DICOM objects, or DICOM objects that are not appropriate for use in other DICOM systems, inside of an instance of the Raw Data SOP class in order to store it in a DICOM archive or on a DICOM medium.

The payload of such a Raw Data SOP Instance is stored in DR Raw Bytes (4453,1021). The length of that enclosed object is stored in DR Raw Byte Length (4453,1020). DR Raw Data Byte Length will be either equal to or one less than the Value Length of DR Raw Bytes, depending on whether the length of the enclosed data is even or odd. If DR Raw Byte Length is odd, then the last byte of DR Raw Bytes should be discarded.

5.3 Coded Terminology and Templates

5.3.1 Context Groups

No extended or private context groups are used.

5.3.2 Template Specifications

None.

5.3.3 Private Code definitions

None.

5.4 Grayscale Image consistency

Not applicable.

5.5 Standard Extended/Specialized/Private SOP classes

Private attributes are added to stored composite SOP Instances as described in **5.1.25 Coerced/Modified fields**. These attributes are used by Merge Unity**Error! No text of specified style in document.**, and may be safely ignored.

None.

5.6 Private Transfer Syntaxes

None.